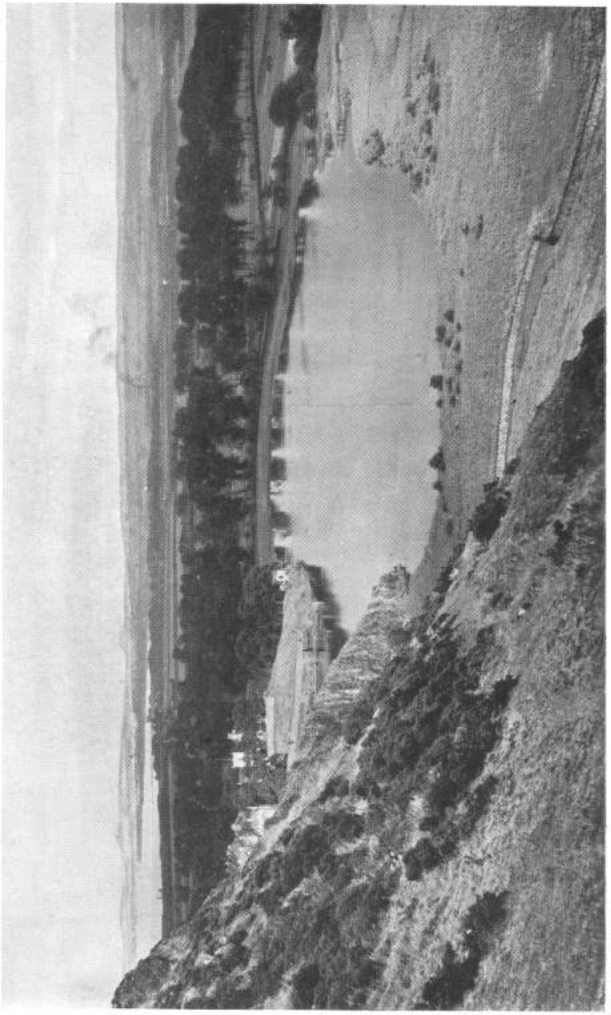

DUDDINGSTON.

R. M. Adam.

THE FIELD-CLUB FLORA

OF

THE LOTHIANS

BY

THE BOTANICAL COMMITTEE OF THE
EDINBURGH NATURAL HISTORY SOCIETY

EDITED BY

ISA. H. MARTIN, M.A., F.L.S.

*WITH DESCRIPTIONS, KEYS, ECOLOGICAL LISTS,
ILLUSTRATED GLOSSARY, AND MAP OF THE LOTHIANS*

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PREFACE.

The Botanical Committee of the Edinburgh Natural History Society (formed by the amalgamation, in 1923, of the Edinburgh Field Naturalist and Microscopical Society and the Scottish Natural History Society) has issued this handbook, in order to supply a felt want, not only to Field-Club members, but to younger students attending classes at school or college, by giving plant descriptions and simple keys with as few technical terms as possible, to enable them to identify the botanical specimens collected during their rambles.

To prevent confusion of names, various synonyms in common use have been inserted after those of the Eleventh Edition of the London Catalogue of British Plants, whose order and nomenclature have been adopted. As suggested by Dr Druce, the names of British aliens have been printed in italics. A good many plants though native to Britain are not native to the Lothians, but they are found in "waste places" or in "plantations."

In certain critical genera, such as the Brambles, Roses, Hawkweeds and Willows, the main well-known groups are dealt with, and the multitude of micro-species have been left to others.

To the ecological lists of the last edition have been added: (1) Dockyard Casuals as found at Leith, and (2) Introduced Plants and Casuals, recorded from various parts of the Lothians. Out of Mr James Fraser's lists of over a thousand aliens, only those "most frequently" found "in quantity" have been given. For checking these new lists we are greatly indebted to Mr W. Edgar Evans.

Though few technical terms have been used, the illustrated glossary of the last edition has been retained, as a general aid to students, and the much desired Index to Common Names has been added.

For several years the members of the Botanical section of the Society spent Saturday afternoons and Wednesday evenings during the summer in botanising districts within easy range of Edinburgh, their finds being recorded by the Convener after each excursion. Many of these records were published in the last edition, together with the interesting additions made by the following highly esteemed members: James Fraser, Leith; the late W. G. Smith, B.Sc., Ph.D.; Andrew Templeman, London; the late Arthur Bennett, A.L.S., Croydon; George Taylor, Cockburnspath; and by W. Edgar Evans, B.Sc., F.R.S.E., Royal Botanic Garden, Edinburgh.

The Society having acquired the copyright of the late C. O. Sonntag's 'Pocket Flora of Edinburgh and the Surrounding District,' that material has been freely used; but, in addition, the works of specialists have been consulted—*e.g.*, Druce, Pugsley, Drabble, Moyles-Rogers, Wolley-Dod, Matthews, W. R. and F. E. Linton, Bews, Ward and Mrs Gregory.

We are greatly indebted to Professor Matthews, Mr Rupert Smith and Dr V. E. M'M. Davey for critically "reading over" portions of the MS., and to Miss Marion Walker, M.A., and Dr Davey for assisting in the task of proof-reading.

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NOTE.

THE nomenclature and sequence of the Eleventh Edition of the 'London Catalogue of British Plants' have been adopted.

Plant Names are printed as follows :—

Generic in capitals—**VIOLA**.
Specific in small letters—**hirta**.
Natives of Britain in ordinary type.
Doubtful Natives starred—**AVENA** 2153 ***fatua**.
Aliens to Britain in italic type—*CUCUMIS sativa*.
Naturalised Aliens starred—*CLAYTONIA* 298 **perfoliata*.

"*Garden Outcasts*" and *casuals of* "*waste places*" in the Lothians are frequently native in other parts of Britain.

Hybrid is denoted by ×—654 × cantiana.

Square brackets denote that a species appears to have become extinct in that place recently.

Time of flowering is denoted by the month-numbers—*e.g.*, Per. 6-9—Perennial, June to September.

INTRODUCTORY NOTE ON CLASSIFICATION.

CLASSIFICATION is the branch of botany which is concerned with the arrangement of plants into groups according to their relationship, and this can only be attained by noting their structure in a methodical manner.

Many systems of classifications have been introduced, but the artificial have been superseded by the natural, although many terms, however, must be used arbitrarily since their precise application has not yet been definitely fixed. It is not surprising that during the process of evolution the boundaries between species, between genera—even between the plant and the animal kingdoms—cannot be sharply defined.

A group of individual plants, which resemble each other so closely that they obviously may be derived from the same parents, constitute a *Species*.

Species which resemble each other more or less closely are grouped together to form a *Genus.*

Similarly related genera are grouped together into *Natural Families* or Orders, Families into *Sub-Classes,* Sub-Classes into *Classes,* Classes into *Divisions,* and Divisions into *Sub-Kingdoms* of the *Vegetable Kingdom.*

Every species has a botanical name of two Latin or Greek words—a noun for the genus and an adjective for the species—*e.g.*, Viola odorata.

In the *Vegetable Kingdom* are two Sub-Kingdoms—*Phanerogams* and *Cryptogams.*

In this volume we deal with the Phanerogams and Vascular Cryptogams only, leaving the large section of *Cellular Cryptogams—Thallophytes* (sea-weeds and fungi) and *Bryophytes* (mosses and liver-worts)—to others.

ABBREVIATIONS.

Acum.—acuminate.
agg.—aggregate.
alter.—alternate.
An.—annual
ang.—angled.
anth.—anther.
appends.—appendages
axill.—axillary.
Bi.—biennial.
cal.—calyx
caps.—capsule.
climb.—climbing.
cili.—ciliate.
comp.—compound.
cord.—cordate.
cor.—corolla.
corymb.—corymbose.
cov.—covered.
cren.—crenate.
crim.—crimson.
cult. gr.—cultivated ground.
cylind.—cylindrical.
dk.—dark.
decid.—deciduous.
decumb.—decumbent.
divar.—divaricate.
diverg.—divergent.
dors.—dorsal.
ellip.—elliptical.
ent.—entire.
ft.—feet.
fert.—fertile.
filam.—filament.
fl.—flower.
flex.—flexuose.
fr.—fruit.
gen.—generally.
gland.—glandular.
glauc.—glaucous.
glob.—globose.
gl.—glume.
gran.—granular.
grav.—gravelly.
gr.—green.
imbric.—imbricate.
in.—inch.
interrupt.—interruptedly.
invol.—involucre.
irreg.—irregular.
lanc.—lanceolate.
lat.—lateral.
lf.—leaf.
lft.—leaflet.
ls.—leaves.
lig.—ligule (of grasses).
lig.—ligulate (of florets of com positæ).
lin.—linear.
lr.—lower.
mead.—meadow.
membr.—membranous.
mucron.—mucronate.
narr.—narrow.
N.O.—Natural Order.
nect.—nectary.
obl.—oblong.
obov.—obovate.
oppos.—opposite.
ov.—oval.
palm.—palmate.
palm.-fid.—palmatifid.
pan.—panicle.
past.—pasture.
ped.—peduncle.
Per.—perennial.
perf.—perfect.

peri.—perianth.
persist.—persistent.
pet.—petal.
pinn.—pinnate.
pinnfid.—pinnatifid.
ptd.—pointed.
pl.—place.
placent.—placentation.
procumb.—procumbent.
promin.—prominent.
prostr.—prostrate.
purp.—purple.
pyram.—pyramidal.
rac.—raceme.
rad.—radical.
recept.—receptacle.
reg.—regular.
rt.—root.
runc.—runcinate.
segm.—segment.
sep.—sepal.
sess.—sessile.
sev.—several.
simp.—simple.
slend.—slender.
sol.—solitary.
sp.—species.
spread.—spreading.
st.—stem.
sta.—stamen.
stig.—stigma.
stip.—stipule.
term.—terminal.
trunc.—truncate.
tub.—tubular.
ubiq.—ubiquitous.
wa.—waste.
wat.—watery.
yell.—yellow.
2-fid., &c.—bifid, &c.
3-nate.—ternate.
3-ang.—triang.—triangular.

GENERAL KEY.

PHANEROGAMS (Spermatophytes) = Flowering (seed-bearing) plants . . . . . N.O. 1-92.

I. **ANGIOSPERMS** : ovules contained in closed ovary ; flowers with generally conspicuous perianth . . . . . N.O. 1-91.

A. DICOTYLEDONS : embryo with 2 cotyledons, leaves net-veined, floral organs in fours and fives . . . . . N.O. 1-76.

(1) **Polypetalae** : corolla of free petals . . N.O. 1-36.

(2) **Gamopetalae** : corolla of united petals . N.O. 37-61.

(3) **Apetalae** : perianth sepal-like or wanting N.O. 62-76.

B. MONOCOTYLEDONS : embryo with 1 cotyledon, leaves parallel-veined, floral organs in threes . . . . . N.O. 77-91.

(1) Perianth regular, wholly or partially petal-like . . . . . N.O. 77, 79-89.

(2) Perianth irregular, petal-like . . . N.O. 78.

(3) Perianth small, or chaffy . . . N.O. 90-91.

II. **GYMNOSPERMS** : ovules naked on open carpel . . . . . N.O. 92.

CRYPTOGAMS = Non-flowering, spore-bearing plants.

I. **VASCULAR CRYPTOGAMS** (Pteridophytes) : roots, stems, and leaves well defined . . N.O. 93-97

(1) **Lycopodineae** (Clubmosses, &c.), spores in closed axill. capsules . . . N.O. 95-97.

(2) **Equisetineae** (Horsetails), spores under shield-like scales in spikes ; green, whorled branches . . . . N.O. 94.

(3) **Filicineae** (Ferns), spore-clusters on leaves ; leaves usually large and divided N.O. 93.

KEY TO NATURAL ORDERS.

PHANEROGAMS.

I. ANGIOSPERMS.

A. DICOTYLEDONS.

1. Polypetalae (Petals free)—

(a) Thalamiflorae—ovary superior—fl. hypogynous.

(1) *Ovary of sev. distinct carpels.*

Sta. many	Ranunculaceae	1
Sta. few, oppos. the petals—shrubs	Berberidaceae	2

(2) *Ovary of united carpels; placent. parietal.*

Flowers regular—		
Sta. 4-6, sep. 4, pet. 4; ls. alter.	Cruciferae	6
Sta. many—		
Floating water-plants	Nymphaceae	3
Land plants—		
Herbs, style 1, stigma shield-like	Papaveraceae	4
Shrubs; styles 3; ls. oppos. ent.	Cistaceae	8
Flowers irregular—		
Sta. 5, sep. 5, pet. 5, lr. pet. spurred	Violaceae	9
Sta. 6 (in 2 bundles), sep. 2, pet. 4	Fumariaceae	5
Sta. many, sep. 4-8, pet. 4-8	Resedaceae	7

(3) *Ovary of united carpels; placent. free-central.*

Sep. 2, sta 4	Portulaceae	13
Sep. 4-5, pet. 4-5, sta. 8-10, styles 2-5; fr. capsule	Caryophyllaceae	12

(4) *Ovary of united carpels; placent. axile.*

Flowers irregular—		
Sta. 8 (in 2 sets), united to pet.-claws; style 1	Polygalaceae	10
Sta. 5, styles 5, sep. 3, pet. 3 (Impatiens)	Geraniaceae	20
Flowers regular—		
Sta. 4-5; shrubs; lf. spiny	Aquifoliaceae	21
Sta. 4-5; herbs; lf. narr. ent.	Linaceae	19
Sta. many; trees; ls. alter.	Tiliaceae	18
Sta. many; epicalyx; fr. schizocarp	Malvaceae	17
Sta. 5-10; fr. beaked, schizocarp	Geraniaceae	20
Sta. 10; lf. 3-nate; fr. capsule (Oxalis)	Geraniaceae	20
Sta. in sev. bundles; ls. oppos.	Hypericaceae	16

(b) Calyciflorae.

(1) *Ovary generally superior—sta. perigynous.*

Flowers irregular, papilionaceous; fr. pod	Leguminosae	25
Flowers regular—		
Sta. many (Alchemilla 1-4)	Rosaceae	26
Sta. fewer than 20—		
Sta. twice no. of pet.; lf. fleshy; fr. follicles	Crassulaceae	28
Sep. united; style 1; fr. capsule	Lythraceae	31
Sta. 8; trees, ls. oppos.; fr. double samara	Aceraceae	24
Sta. 5-10; herbs, styles 2, persist.; ovary 2-celled	Saxifragaceae	27
Sta. 4-5; trees or shrubs, ls. oppos.; fr. with aril.	Celastraceae	22
Ovary 1-celled; lf. gland., hairy	Droseraceae	25

(2) *Ovary inferior—sta. epigynous.*

Flowers in umbels.; lf. sheath.; fr. schizocarp	Umbelliferae	34
Aquatic, ls. whorled, fls. monoecious	Haloragaceae	30
Sep. 2-4, pet. 2-4, sta. 2, 4-8; fr. many-seeded capsule	Onagraceae	32

Calyx and ovary united ; fr. berry .	Saxifragaceae	27
Lf. leathery, alter. ; fr. berry . .	Araliaceae	35
Ls. oppos. ; ovary 2-celled ; fr. drupe	Cornaceae	36

2. **Gamopetalae** (Petals united).

(*a*) *Ovary inferior*—

(1) *Sta. inserted in petals*—

Florets in compact heads with involucre—

Anthers free	Dipsacaceae	40
Anthers united in ring round style .	Compositae	41

Flowers not in heads—

Ls. whorled, fls. regular . . .	Rubiaceae	38

Ls. opposite—

Shrubs ; ovary 3-celled . .	Caprifoliaceae	37
Herbs ; ovary 1-celled . . .	Valerianaceae	39

(2) *Sta. inserted on top of ovary*—

Sta. 5 ; herbs ; ls. alter. ; fr. capsule.	Campanulaceae	42
Sta. 8 ; small shrubs ; ls. alter. ; fr. berry	Vacciniaceae	43

(*b*) *Ovary superior*—

(1) Corolla regular—

Sta. 5-8-10 ; small shrubs ; evergreen	Ericaceae	44

Sta. 4-5 ; ovary 1-celled—

Styles 5 ; ovule 1 ; fr. nut . .	Plumbaginaceae	46
Style 1 ; ovules many ; fr. capsule. .	Primulaceae	47

Sta. 2-5 ; ovary 2-celled—

Sta. 2 ; shrubs or trees ; fr. berry or samara	Oleaceae	48
Sta. 5 ; ls. evergreen ; fr. 2 follicles .	Apocynaceae	49
Sta. 4-8 ; anth. versatile ; fr. capsule	Gentianaceae	50

Ovary 2-4-celled—

Sta. 4 ; sep. 4 ; ls. in rad. rosette .	Plantaginaceae	60
Sta. 5 ; ovary 2-celled ; twining plant	Convolvulaceae	52
Ovary 3-celled ; stig. 3-fid. ; lf. pinn.	Polemoniaceae	51
Ovary 4-lobed ; fr. 4 nutlets ; fls. in scorpioid cymes ; ls. alter. . .	Boraginaceae	52
Ovary 2-celled ; fr. many-seeded .	Solanaceae	54

(2) Corolla irregular—

Sta. 2 ; fr. capsule ; insectivorous .	Lentibulariaceae	57

Sta. 4, in pairs of diff. lengths—

Ovary 2-celled ; fr. capsule . .	Scrophulariaceae	55
Ovary 1-celled ; brownish parasites .	Orobanchaceae	56
Ovary 4-lobed ; fr. 4 nutlets ; stem square ; ls. oppos. decussate . .	Labiatae	51

3. **Apetalae** (Perianth sepal-like or absent)—

(*a*) *Flowers not in catkins*—

(1) Ovary superior—

(*α*) Ovary 1-celled—

Small herbs, stip. small, membr. (except Genus 355) . . .	Illecebraceae	61
Herbs almost shrubby ; often fleshy, stip. 0	Chenopodiaceae	63
Stip. tubular (ochrea) ; fr. triang. nut	Polygonaceae	64
Perianth 3-8-cleft or 0 ; fr. samara or nut	Urticaceae	71
Shrubs ; perianth 4-lobed ; sta. 8 ; fr. berry	Thymeleaceae	66
Water plants ; ls. whorled, divided ; fls. minute	Ceratophyllaceae	76

(*β*) Ovary 2 or more-celled—

Small shrub ; lf. evergreen, heath-like ; fr. berry	Empetraceae	75
Herbs, juice milky ; fl. cyathium., peri. 0	Euphorbiaceae	70
Shrubs, evergreen, ls. oppos. ; fl. monoecious, axill. . . .	Euphorbiaceae	70
Herbs, ls. oppos. serr. ; fl. dioecious, peri. 3, sta. 8-20	Euphorbiaceae	70

(2) Ovary inferior—

Sta. 6-12, epigynous, ovary 6-celled .	Aristolochiaceae	65

(*b*) *Flowers in catkins*—

Shrub, dioec., lf. silvery ; fr. in orange, fleshy perianth	Eleagnaceae	67
Small shrub, ls. aromatic ; catkin short, erect	Myricaceae	72

Tree or shrub, monoecious; ls. alter., fr. nut	Cupuliferae	73
Tree or shrub, dioecious; fr. capsule, seed with tuft of hair	Salicaceae	

B. MONOCOTYLEDONS.

1. **Glumiflorae—grasslike.**

Stems solid, 3-ang., not jointed; sheath ent.	Cyperaceae	90
Stem hollow, jointed; sheath split	Graminaceae	91

2. **Petaloidae.**

(*a*) *Ovary inferior—fl. epigynous—*

Aquatic; fls. dioecious	Hydrocharideae	77
Fl. irreg.; sta. 1-2, united to style; ovary twisted, 1-celled, placent., parietal	Orchidaceae	78
Sta. 3; stig. 3, petal-like; ovary 3-celled, placent. axile.	Iridaceae	79
Sta. 6; ovary 3-celled; placent. axile.	Amaryllidaceae	80

(*b*) *Ovary superior—fl. hypogynous—*

Perianth petal-like; sta. 6; fr. capsule or berry	Liliaceae	82
Perianth sepal-like, chaffy; lf. narr., grass-like	Juncaceae	83
Perianth petal-like; fr. group of achenes or follicles, marsh or water plants	Alismaceae	87

3. **Spadiciflorae**—fls. in spadix, perianth 0.

Marsh plant; fls. in cylind. spike or glob. hd.; spathe 0; lf. lin.	Typhaceae	84
Fls. on fleshy spadix with spathe; fr. berry	Araceae	85
Minute float. plant of leaf-like oval scales	Lemnaceae	86
Marsh or water plant, st. jointed, lf. sheathed, fl. axill.	Naiadaceae	88

II. GYMNOSPERMS.

Ovules on open carpels; no stigma, no closed ovary	Coniferae	92

CRYPTOGAMS—Spore-producing plant developed in 2 generations.

I. VASCULAR (Pteridophytes).

1. Shoots much branched; lf. simp.; spores on spikes—

(*a*) spores of 2 kinds; ls. of 2 sizes in 4 rows	Selaginellaceae	96
(*b*) Spores of 1 kind; ls. arranged spirally	Lycopodiaceae	95

2. Shoots bearing reg. whorls of green branches, internodes jointed, ls. reduced to sheaths — Equisetaceae 94

3. Shoots with few or no branches; lf. large, gen. pinn., with spore-clusters—

(*a*) Spores of 1 kind	Filices	93
(*b*) Spores of 2 kinds; small aquatic	Marsiliaceae	97

PHANEROGAMS (SPERMATOPHYTES).

I. ANGIOSPERMS.

A. DICOTYLEDONS.

(1) POLYPETALAE.

1. RANUNCULACEAE.

Buttercup Family—Herbs with flowers usually reg., sol. or in racemes; sep. more than 2, distinct; pet. 5 or 0, distinct; sta. many; carpels distinct, usually many; fruit, a group of 1-seeded nuts or many-seeded follicles.

Key to Genera.

I. *Flowers regular:*

A. *Climbing shrub; ls. oppos.—*

(1) *Sep. 5, petal-like; pet. 0; fr. group of achenes with long feathery styles (awns)* . *Clematis* 1

B. *Herbs; ls. alter. or rad.:*

(1) *Sep. 5, pet. 5; fr. group of achenes in obl. or glob. head* . . . . . *Ranunculus* 6

(2) *Sep. petal-like:*

(a) *Pet. absent:*

Sep. 4-5; fr. group of achenes; ls. comp. Thalictrum 2

Sep. 5-14; fr. group of achenes; bracts under fl. 3 . . . . *Anemone* 3

Sep. 5; fr. 5-10 follicles; ls. simp., kidney-shaped . . . . *Caltha* 7

(b) *Pet. present; fr. group of follicles:*

Sep. 5, pet. 5-15, small, lin., flat; fl. glob. *Trollius* 8

Sep. 5, gr.; pet. 8-10, small, tubular, green *Helleborus* 9

Sep. 5, pet. 5, small, tubular; foll. stalked *Eranthis* 10

Sep. 5, pet. 5, funnel-shaped, spurred . *Aquilegia* 11

II. *Flowers irregular:*

Sep. 5, petal-like, upper hooded, pet. 5, upper tubular . . . . . 2 *Aconitum* 13

1 CLEMATIS L.

1 **Vitalba** L. *Traveller's Joy, Old Man's Beard, Virgin's Bower.* Hedges. Per. 7-8, st. woody, very long, climbs by twisted lf.-stalks; ls. oppos. pinn., lfts. 3-5 stalked, ent. ov.-acum. cord. toothed; fls. in loose pan., gr.-white, sep. 4, petal-like; sta. many, carpels many; fr. group of achenes with long, feathery, persist. styles.

North Berwick, Haddington, Dirleton, Pencaitland, Dalkeith, Calton, Roslin.

2 THALICTRUM L.

4 **dunense** Dum. *Sand Meadow-Rue.* Sand-dunes. 6-18 in. Per. 7-8, st. branched, zigzag, sheathed at base; stip. with spread. ears; ls. 2-3 pinnate, lfts. 3-nate, wedge-shaped, 3-cleft toothed, glauc., gland.; fls. in loose, leafless pan. of horiz. or droop. branches; sep. 4, petal-like, gr.-yell., pet. 0, sta. many, long, conspicuous; styles many; fr. group of spindle-shaped achenes without awns.

North Berwick, Longniddry, Granton, Cramond, Dalmeny.

3 ANEMONE L. Ls. rad. deeply cut; fl. sol. with involucre of 3 leafy, lobed bracts below; sep. 5-9, petal-like, pet. 0, sta. and styles many; fr. group of achenes with persist. styles.

9 **nemorosa** L. *Wood Anemone, Wind-flower.* Woods. 4-8 in. Per. 4-5, ls. rad. twice 3-nately lobed, cut; fl. droop. white or tinged pink, sep. 6, petal-like, spread.; pet. 0, sta. many; fr. group of downy, beaked achenes.

Cockburnspath, Gifford, Gosford, Heriot, Roslin, Currie, Dalmeny, Almondside, Kirkliston, Hopetoun, Philipstoun, Carribber.

6 RANUNCULUS L. Ls. ent., lobed, or cut; fl. reg., yell. or white, sep. 3-5, pet. 5, or more with nectary at base; receptacle glob. or obl.; fr. group of achenes.

(1) **R. aquatilis** L. *Water Buttercups,* with white flowers.

(*a*) *With no floating leaves.*

14 **circinatus** Sibth. = **divaricatus** Koch. = **foeniculaceus** Gilib. Pools. Per. 6-8, ls. all submerged, very finely cut, dk.-gr., lf.-segm. short, threadlike, spread. in one flat, roundish plane; fl. large, white, pet. many-veined; recept. obl., sta. 15-20 longer than pistil.

Duddingston, Linlithgow, Manuel.

15 **fluitans** Lam. Strs. Per. 5-8, st. long; ls. all submerged, finely cut, lf.-segm. very long, thread-like, parallel; fl. large, pet. many-veined, white, recept. conical; sta. shorter than pistil.

East Linton, Aberlady.

16 **trichophyllus** Chaix. Pools, &c. Per. 5-7, ls. all submerged, dk.-gr., lf.-segm. spread. but not in one plane; fl. small, white, pet. 5-7, veined; recept. glob.; sta. longer than pistil.

Gullane, Polton, Balerno, Dalmahoy.

(*b*) *With floating leaves.*

18 **peltatus** Schrank. Ponds, &c. Per. 5-9, float. ls. long-stalked, shield-like, 3-5-fid. segm. notched; submerged ls. 3-forked, spread.; fl. large, white, recept. ovate; sta. (30) longer than pistil.

Gosford, Glencorse.

21 **Baudotii** Godr. Brackish water. Per. 5-8, float. ls. 3-4-lobed, segm. wedge-shaped; submerged ls. closely forked, rigid; fl. large, white, recept. long, conical; sta. (15-20) shorter than pistil.

Aberlady, Duddingston.

25 **hederaceus** L. *Ivy-leaved Crowfoot.* Shallow water, muddy pl. 2-6 in. Per. 6-9 (no divided, submerged ls.), ls. kidney-shaped, 5-lobed, usually spotted; fl. very small, pet. narr., 3-veined, sta. 6-8, style lateral.

Thorntonloch, Borthwick Hall, Heriot, Bonaly, Dalmahoy, South Queensferry.

(2) *Land plants,* with yellow flowers.

26 **sceleratus** L. *Celery-leaved Crowfoot.* Muddy pl. 6-20 in. An. 5-9, st. erect, thick, hollow; ls. 3-5 lobed, glossy; upper ls. divided to base, segm. 3 narr.; fl. very small, pale yell.; *sep. reflexed;* fr. obl. head of achenes.

North Berwick, Whittingehame, Beil, Aberlady, Luffness, Duddingston, Craigmillar, Linlithgow.

28 **Flammula** L. *Lesser Spearwort.* Wet. pl. 4-18 in. Per. 6-10, st. creep. at base, rooting; ls. ovate or lin.-lanc. nearly ent., fl. small, yell., long-stalked; ped. furrowed; beak of achene awl-shaped.

Gullane, Aberlady (var. radicans Nolte.), Carberry, Duddingston, Corstorphine, Ratho, Kaimes Hill, Linlithgow.

31 **Lingua** L. *Greater Spearwort.* Marshes. 2-5 ft. Per. 6-9, st. erect, stout, hollow; ls. long, lanc. acute, sess. clasp. (early submerged ls. cord. blunt.); fl. large, in loose pan., yell.; beak of achene recurved.

Prestonhall, Duddingston, Linlithgow.

32 **auricomus** L. *Goldilocks, Wood Crowfoot.* Copses. 6-10 in. Per. 4-8, rad. ls. kidney-shaped, 3-7 fid. long-stalked, st.-lf.-segm. lin., sess.; fl. large, bright yell.; sep. spread. yell. downy: beak of achene slend., hooked.

Whittingehame, Beil, Borthwick, Arniston, Musselburgh, Kirkliston.

33 **acris** L. *Buttercup, Meadow Crowfoot.* Pasts. 6-36 in. Per. 6-8, plant hairy; rt. fibrous; rad. ls. palmately 3-7 lobed, lobes deeply cut, upper ls. sess. segm. narr.; fl. yell., *ped. round, smooth;* recept. smooth, sep. spread., yell-gr. downy; nectary with scale; beak of achene short, recurved.

East Linton, Dirleton, Cockenzie, Musselburgh, Roslin, Gogar, Carlowrie, Linlithgow, Blackness.

34 **repens** L. *Creeping Buttercup or Crowfoot.* Fields, &c. 6-12 in. Per. 5-8, creep., rooting at every joint; ls. with 3 shortly-stalked segm. 3-lobed, cut, central lobe long; fl. yell.; *ped. furrowed, hairy;* sep. spread.; recept. hairy; nectary with scale.

Haddington, Gullane, Gosford, Musselburgh, Craigmillar, Ratho, Carlowrie, Abercorn, Bo'ness.

35 **bulbosus** L. *Bulbous Buttercup or Crowfoot.* Pasts. 6-24 in. Per. 5-8, st. bulbous at base, smooth; ls. hairy, rad. ls. of 3 segm., each 3-fid, cut; upper-lf.-segm. narr.; fl. yell. ped. furrowed, smooth; sep. hairy, *reflexed*; nectary with scale; achene smooth, beak recurved.

North Berwick, Gullane, Aberlady, Inveresk, Gorebridge, Ratho, Kirkliston, Linlithgow, Carribber.

39 **arvensis** L. *Corn Crowfoot.* Fields, &c. 6-18 in. An. 5-7, plant pale gr.; st. erect; ls. 3-cleft, segm. 3-fid., toothed; upper-lf.-segm. lin.-lanc.; fl. pale yell., sep. spread. nect. with scale; *achene cov. with hooked prickles.*

Dunbar, Gullane, Prestonhall, Portobello, Leith, Granton, Slateford, Linlithgow.

41 **Ficaria** L. *Lesser Celandine, Pilewort.* Damp. pl. 3-6 in. Per. 4-5, rt. with obl. tubers; ls. mostly rad. cord. ang. thick, glossy; fl. yell., sep. usually 3, pet. *usually* 8 *narr. acute.* nect. with scale.

Pressmennan, Gifford, North Berwick, Arniston, Roslin, Blackford Hill, Dalmeny, Hopetoun, Carribber.

7 CALTHA L.

42 **palustris** L. *Marsh Marigold.* Marshes, &c. 8-18 in. Per. 3-6, st. rooting at joints; ls. rad. round, cord. cren. long-stalked; fl. large, bright yell., sep. 5, petal-like, glossy, pet. 0, sta. many; carpels 5-10, many-ovuled; fr. ring of follicles.

North Berwick, Aberlady, Haddington (var. minor), Port Seton, Duddingston, Balerno (var. minor), Ratho, Dalmeny, Hopetoun, Carribber.

8 TROLLIUS L.

44 **europaeus** L. *Globe-flower.* Damp hill-pasts. 6-18 in. Per. 5-6, st. erect; ls. 5-palm-fid., segm. wedge-shaped, lobed, cut; fl. glob., sep. 10-15, golden-yell., petal-like, concave; pet. 10, small, strap-shaped; fr. group of several follicles.

Aikengall, Garvald, Penicuik, Currie, Mid-Calder, Woodcockdale, Carribber.

9 HELLEBORUS L.

Ls. divided; fl. large, greenish; sep. 5, petal-like; pet. very small, tubular; sta. many, carpels large; fr. 3-10 sess. follicles.

45 **viridis** L. *Green Hellebore, Bear's-foot.* Woods. 12-18 in. Per. 3-5, rad. ls. palm. divided, decid.; ped. few-fld.; fl. large, yell.-gr., sep. spread.

Dunglass, Turnhouse.

46 **foetidus** L. *Stinking Hellebore, Setterwort.* Woods, &c. 1-2 ft. Per. 3-5, rad. ls. pedate, evergreen; ped. leafy, many fld.; fl. greenish, tipped purp., glob.; sep. concave.

Warriston, Lasswade, Corstorphine.

10 *ERANTHIS* Salisb. = *CAMMARUM* Hill.

47 **hyemalis* Salisb. *Winter Aconite.* Plantations, &c. 6-12 in. Per. 2-4, rad. ls. round, 3-7 lobed, deeply cut, long-stalked, lf.-segm. lin.-obl. glossy; fl. sol. yell. with involucre of 3 leafy bracts, just below it, sep. 6-8, petal-like, obl.; pet. small, tubular; fr. 5-6 stalked follicles.

Inveresk, Gorebridge.

11 **AQUILEGIA** L.

48 **vulgaris** L. *Columbine.* Gard. outcast. 1-2 ft. Per. 5-6, ls. smooth, glauc. long-stalked, rad. ls. 2-3-ternate; segm. 3-lobed, cren. stalked; fl. large, droop., bluish, &c.; sep. 5, petal-like; pet. 5, funnel-shaped with long curved spur; fr. 5 follicles.

Dirleton, Dalhousie, Hawthornden, Auchindinny, Dalmeny, Linlithgow, Blackness.

13 **ACONITUM** L.

51 **Napellus** L. = **anglicum** Stapf. *Monkshood, Wolfsbane.* Gard. outcast. 1-2 ft. Per. 7-8, st. simp.; ls. dk.-gr. stalked, 3-5 palm.-lobed, segm. lin. deeply cut; fl. irreg. large, dk.-blue, erect, in dense term. rac.; sep. 5, petal-like, upper sep. helmet-shaped, pet. 2-5 in calyx—2 upper tubular, long-stalked, hidden in hooded sep., 3 small, lin. (or abs.); fr. 3-5 follicles.

Haddington, Borthwick, Arniston, Roslin.

2. BERBERIDACEAE.

Barberry Family—Shrubs with alter. ls.; fl. reg. yell. or red; sep. 4-6, pet. 4-6, sta. 4-6, ovary 1-celled, placent. basal or lat.; fr. 2-3-seeded berry or many-seeded follicle.

Key to Genera.

Pet. sep. sta. 6; fr. berry; fl. yell.—prickly shrub	*Berberis*	16
Pet. sep. sta. 4; fr. follicle; fl. red.—under-shrub	*Epimedium*	17

16 **BERBERIS** L.

54 **vulgaris** L. *Barberry.* Hedges. 4-8 ft. Per. 5-6, wood yell.; branches arched, with 3-forked spines at base of ls.; ls. alter. or clustered, stiff, sharply toothed or reduced to spines; fl. yell. in droop. rac.; sep. yell., pet. with gland; sta. sensitive; berry obl., orange-red.

Dunbar, Tynninghame, Humbie, Longniddry, Crichton, Colinton, Currie, Dalmeny, South Queensferry, Kirkliston.

17 *EPIMEDIUM* L.

56 **alpinum* L. *Barrenwort.* Garden escape. 6-18 in. Per. 6-7, rhiz. woody; ls. twice 3-nate, lfts. ovate-cord. toothed; fl. red with yell. cup-shaped honey glands within petals; fr. many-seeded follicle.

Dalhousie, Prestonfield, Kirkliston.

3. NYMPHACEAE.

Water Lily Family—Water plants with large float. ls.; fl. sol. large, sep. 4-5, pet. many, grad. passing into many sta. all inserted on a fleshy disc, surrounding the ovary, stigma shield-shaped with many rays (15-20); ovary 10-20-celled; fr. many-seeded, in pulpy aril.

Key to Genera.

Sep. 5, pet. inserted on receptacle; fl. yell. glob.	*Nuphar*	18
Sep. 4, pet. inserted on base of ovary; fl. white, spread	*Nymphæa*	19

18 **NUPHAR** Sm. = **NYMPHÆA** L.

57 **lutea** Sibth. & Sm. *Yellow Water-lily.* Lakes &c. Per. 7-8. ls. obl. cord., submerged ls. membr., float.-ls. leathery; fl. yell. 2½ in. across, sep. 5, concave, yell. much larger than pet.; sta. many, carpels many, united in ovary on top of recept.; fr. glob. fleshy with 15-20 rayed disc.

Dunglass, Prestonpans, Elf Loch (var. intermedia), Linlithgow.

19 **NYMPHÆA** L = **CASTALIA** Salisb.

59 **alba** L. *White Water-lily.* Lakes, &c. Per. 7-8, ls. all float. round, deeply cord. 6-8 in. across; fl. 3-4 in. across.

white; sep. 4, gr. (white inside); pet. obl. white; sta. many, carpels many, embedded in recept., stigma, yell. 15-20 rayed; fr. pulpy.

Tynehead, Meadowbank, Newliston, Linlithgow.

4. PAPAVERACEAE.

Poppy Family—Herbs with milky juice; ls. alter; fl. large, reg., sep. 2, pet. 4, sta. many; ovary 1-celled, placent. parietal; fr. many-seeded capsule.

Key to Genera.

1. *Fr. glob. or obl. capsule open. by pores; juice milky:*		
(a) *Fr. with incomplete partitions; stigma of 4-20 rays on sess. flat disc; juice white* .	*Papaver*	20
(b) *Fr. without partitions; stig. 5-6 rays on short style; juice yellow*	*Meconopsis*	21
2. *Fr. lin. capsule open. by valves; juice yellow:*		
(a) *Stig. 2-lobed; fl. large, yell.; plant glauc.—seashore*	*Glaucium*	22
(b) *Stig. sess. 3-4-rayed; caps. open. downwards; fl. violet*	*Roemeria*	23
(c) *Stig. 2-lobed on short style; caps. open. upwards; fl. small, yellow* . . .	*Chelidonium*	24

20 PAPAVER L. Plants with white, milky juice; ls. lobed or cut; fl. large, long-stalked, sep. 2, pet. 4, crumpled in bud, sta. many, stig. 4-20 rays on sess., flat disc crowning ovary; fr. ov. or glob., capsule open. by pores under stigma, with internal partitions projecting but not meeting; seeds many.

61 **somniferum* L. *White or Garden Poppy.* Wa. pl. 1-3 ft. An. 6-8, st. usually smooth; ls. obl. slightly lobed, irreg.-toothed, clasp.; fl. large, pet. bluish-white with violet spot at base; fr. glob. large, smooth.

Tantallon, North Berwick, Musselburgh, Craigmillar, Slateford, Comiston, Colinton, Linlithgow.

62 **Rhoeas** L. *Common Red Poppy.* Corn-fields. 1-2 ft. An. 5-7, st. hairy; ls. pinnfid, lobes lanc. cut; *ped.-hairs spread.*; fl. large, pet. deep scarlet, dark at base; *fr. glob. smooth.*

North Berwick, Drem, Aberlady, Musselburgh, Roslin, Colinton, Kirkliston, Hopetoun, Linlithgow.

63 **dubium** L. *Long Smooth-headed or Pale Red Poppy.* Cornfields. 1-2 ft. An. 5-7, ls. pinnfid, lobes broad, blunt, ent.; *ped.-hairs adpressed;* fl. large pale red; *fr. club-shaped, smooth.*

North Berwick, Aberlady, Seton Halt, Borthwick, Duddingston, Ratho, South Queensferry, Abercorn, Linlithgow.

65 **Argemone** L. *Long, Rough or Prickly-headed Poppy.* Cornfields. 6-12 in. An. 6-7, ls. 2-pinnfid, segm. few narr.; fl. small, pet. pale red, black at base; fr. *club-shaped with erect bristles.*

Haddington, Gullane, Seton Halt, Inveresk, Dalkeith, Liberton, Comiston, South Queensferry.

66 **hybridum** L. *Round, Rough or Prickly-headed Poppy.* Cornfields, &c. 6-15 in. An. 6-8, ls. 2-pinnfid, segm. stiffer, shorter; fl. small, pet. crimson with dark spot at base; *fr. nearly glob. with spread. bristles.*

Dunbar, Skateraw, Slateford.

21 MECONOPSIS Vig.

67 **cambrica** Vig. *Welsh Poppy.* Rocky pl. 1-2 ft. Per. 6-8, plant slend., with yell. juice; ls. long-stalked, pinn. pale gr. slightly hairy, glauc. beneath, lfts. cut; fl. large, orange-yell., long-stalked, sep. 2, pet. 4, sta. many, stig. 4-6 rays on short style; fr. narr.-ov. beaked, smooth.

Winton, Currie, Carlowrie, South Queensferry, Hopetoun.

22 GLAUCIUM Hill.

68 **flavum** Crantz.=**luteum** Scop. *Sea, Yellow Horned-Poppy.* Sandy sea-coast. 1-2 ft. Bi. 6-9, very glauc. plant with yell. juice; st. stout, branched; ls. thick, glauc. wavy, rt.-ls. stalked, pinnfid. rough with thick, short hairs, st.-ls. clasp.; fl. large golden yell.; sep. 2, pet. 4, sta. many; fr. long (6-12 in.) curved, minutely warty.

Skateraw, Gosford.

23 *ROEMERIA* Med.

69 *hybrida* D.C.=*violacea* Med. *Violet Horned-Poppy.* Wa. pl. An. 5-6, plant with yell. juice; ls. 2-pinnfid.; segm. lin. bristle-ptd.; fl. violet, sep. 2, pet. 4, sta. many; fr. lin. (2-3 in.) opening downwards, with few stiff hairs at tip.

Musselburgh, Leith, Slateford.

24 CHELIDONIUM L.

70 ***majus** L. *Great Celandine.* Wa. pl. 1-2 ft. Per. 5-8, plant with acrid orange juice; ls. thin, glauc. beneath, deeply pinnfid, segm. rounded, bluntly lobed; fl. in long-stalked umbels, small, yell.; fr. smooth, lin. (1½-2 in.) opening upwards.

Tynninghame, Tranent, Dalhousie, Murrayfield, Corstorphine, Hopetoun, Linlithgow, Manuel.

5. FUMARIACEAE.

Fumitory Family—Delicate herbs with alter. much-divided ls.; small irreg. spurred fls. in racemes; sep. 2 (or 0), pet. 4, sta. 2, each 3-partite (apparently 6 in 2 bundles); carpels 2, ovary 1-celled, placent., pariet., or basal.; fr. a capsule or nut, seeds crested.

Key to Genera.

Fr. long, many-seeded (podlike)	*Corydalis*	25
Fr. round, 1 seeded (nut)	*Fumaria*	26

25 CORYDALIS Vent. Ls. much-divided, smooth; fl. small, irreg. sep. 2 (or 0), pet. 4, usually in dissimilar pairs, upper spurred at base; sta. 2 (appar. 6); fr. long, 2-valved, compressed, many-seeded.

71 **lutea* D.C. *Yellow Corydal.* Old Walls. 6-12 in. Per. 5-8, st. erect, or spread. branched, ang.; ls. pale gr., 2-pinn., lfts. wedge-shaped, lobed; fl. yell. in short, lat. rac., spur short, broad; bracts minute.

Stenton, East Linton, Tranent, Borthwick, Slateford, Carriden.

73 **claviculata** D.C. *Climbing Corydal.* Copses, &c. 1-3 ft. long. An. 6-9, st. slend. climb. tendrilled; ls. pinn., lfts. 3-5-nate, segm. ov.; fl. small, yell.-white, in short, compact term. rac., spur. very short.

Cockburnspath, Corstorphine, Carlowrie, Drumshoreland.

26 FUMARIA L. St. erect, spread. or climb.; ls. pale gr. glauc. 2-3-sect.; fl. irreg. in rac., sep. 2, coloured, pet. 4, in dissimilar pairs upper one spurred at base; sta. 2 (appar. 6); ovary 2-ovuled, but fr. 1-seeded nut.

(1) "*Large-flowered,*" "*large-leaved*"—*upper pet. with wings scarcely dilated, inner pet. curved upwards; lf.-segm. flat, oval-lanc.*

75 **capreolata** L=**pallidiflora** Jord. *Rampant Fumitory.* Cult. gr. An. 6-9, plant climb. by twisted petioles; fl. in dense many-fld. (20) rac., bracts lin.-lanc. shorter than pedicel; *ped. recurved;* cor. cr-white with tip of inner pet. and wings of upper dk.-red; sep. twice as long as broad, broad-ovate, toothed at base, broader than cor.-tube; upper pet. very narr. acute; lr. pet. with erect, very narr. wings; fr. small, roundish, smooth, with well-marked pits.

Gosford, Craigmillar, Ratho, Kirkliston, Currie, Ecclesmachan, Manuel.

76 **purpurea** Pug.=**Boraei** Bab. (not. Jord.) *Purple Fumitory.* Cult. gr. An. 6-9, climb.; lf.-segm. narrower than in F. capreolata; rac. lax, 20-24 fld.; bracts as long as fr. ped., lowest sometimes leafy, longer; peds. stout, stiff, spread. *recurved in fr.;* cor. purp., tip of inner pet. and wings of upper dk.-purp.; sep. broad-obl., *peltate,* slightly toothed towards base, whitish or purp.-tinted *with broad band of green,* broader than cor.-tube; fr. squarish, wrinkled.

Gullane, North Berwick, Cramond, Carlowrie.

77 **Bastardi** Bor.=**confusa** Jord. *Pink Fumitory.* Cult. gr. An. 5-9, st. much-branched; lft.-lobes narr. obl.; rac. 15-25 fld. lax; bracts short, lin.-obl.; ped. rather long, slend., straight in fr.; sep. ov.-acute, toothed, teeth pointing to tip, rosy *with green line;* cor. pink, with tip of *inner petals only,* darker, lat. pet. compressed, long-winged; *spur longer than sep.;* fr. round, wrinkled when dry.

Kirkliston.

81 **Boraei** Jord.=**muralis** Bor. *Fumitory.* Cult. gr. An. 5-9, st. much-branched; rac. 12-15 fld. lax.; bracts lin.-lanc. acum. shorter than fr.-ped., ped. straight, erect.-spread.; cor. rose-pink, tip of inner pet. and wings of upper dk.-red.; sep. broad-ovate, peltate, irreg.-toothed towards base, wh. or pk. with gr. line, broader than cor.-tube; *spur shorter than sep.;* fr. obov. smooth or finely wrinkled.

Canty Bay, Craigmillar.

(2) "*Small-flowered,*" "*Narrow-leaved.*"—*upper pet. with broad wings, more or less spread., lower pet. spatulate, inner pet. nearly straight; lf.-segm. lanc. or lin. channelled or flat.*

82 **micrantha** Lag. = **densiflora** D.C. *Closeflowered Fumitory.* Cult. gr. 6-20 in. An. 6-9, ls. finely cut, lft. lin. acute, grooved, lobed; rac. very dense 20-25 fld. on very short, thick ped.; bracts lin.-obl. acum. longer than fr.-ped. whitish-pink with gr. rib.; sep. broad, nearly round, much broader than cor.-tube; cor. rose-pink, with tip of inner pet. and wings of upper dk.-red., upper pet. narr.; *spur large, rounded;* lr. pet. with spread. wings, spatulate; fr. rounded, keeled, wrinkled when dry, fr.-ped. short, dilated above, straight, erect-spread.

Canty Bay, Longniddry, Seton Mains, Calton Hill, Craiglockhart, Slateford, Linlithgow.

83 **officinalis** L. *Fumitory.* Cult. gr. 6-12 in. An. 5-9, compact in open field, rampant in shade; lft. cut into lin. lobes; rac. dense at first, 20-fld.; bracts lin.-lanc. acum. shorter than fr.-ped.; fr.-ped. straight, erect-spread.; sep. ovate-lanc., irreg.-toothed at base, *narrower than cor.-tube;* cor. purp.-pink with tip of inner pet. and wings of upper dk.-red., upper pet. broad, compressed; lr. pet. with spread, wings, spatulate; fr. truncate, wrinkled when dry.

East Linton, Canty Bay, Seton Mains, Craigmillar, Balerno, Ratho, Kirkliston, Hopetoun, Linlithgow.

84 **Vaillantii** Lois. *Small-flowered Fumitory.* Chalky cornfields, wa. pl., &c. 6-10 in. An. 6-9, plant rather dwarf, slend., often with many short interlacing branches; ls. irreg. 2-pinnatisect, glauc., lft. cut into *flat,* acute, lin.-obl. lobes; rac. rather lax, 6-12 fld. on short *ped.;* bracts lin.-lanc. rather more than half as long as fr.-ped.; fr.-ped. short, straight, dilated above, nearly erect; sep. minute, lanc. acum. irreg.-toothed; cor. long, *pink,* tip of inner pet. dk.-red, wings of upper pet. rather darker, upper pet. dorsally compressed, with thick gr. keel and spread. wings very broad towards tip; lr.-pet. narr. below but abruptly dilated towards tip, with spread. margin.; fr. rather small, almost round, faintly keeled, gran.-wrinkled when dry.

Leith, &c.

85 **parviflora** Lam. *Small-flowered Fumitory.* Chalky cornfields, wa. pl., &c. 6-10 in. An. 6-9, branches spread. lft. *grooved,* cut into lin. acute lobes; rac. dense at first, 20-fld. almost sess.; bracts lin.-obl. toothed above, whitish, as long as fr.-ped., fr.-ped., short, much dilated above; *sep. minute* ovate, acute, irreg.-toothed; cor. *white,* tip of inner pet. dk.-red, *dark blotch at base of upper pet.-wings;* upper pet. broad, much compressed, green-keeled, lr.-pet. spatulate; fr. rather small, round, keeled, wrinkled.

Dirleton, Longniddry, Leith, Slateford.

6. CRUCIFERAE.

Wallflower Family—Herbs with alter. ls. without stipules; fl. reg. in bractless term. raceme; sep. 4, pet. 4 (rarely unequal), sta. 6 (4 long, 2 short), or 4; ovary 2-celled with thin partition (as in Honesty) or 1-celled and jointed; style very short or 0; placent. marginal; fr. a pod—siliqua or silicula.

Key to Genera.

I. *Fruit long—siliqua:*

A. *Fr. neither beaked nor jointed:*

(1) *Stigma 2-lobed; seeds in 1 row:*

(a) *Fr. compressed, 2-ribbed; fl. large, yell.* — *Cheiranthus* 28

(b) *Fr. 4-ang. keeled, 3-veined; fl. purp.; —tall* . . . . . *Hesperis* 37

(2) *Stigma entire:*

(a) *Seeds irreg. in 2 rows—*

Fr. lin. cylind. short; fl. wh. or yell., sep. spread; ls. divided . . . *Nasturtium* 29

(b) *Seeds in 1 row:*

Fr. lin. 4-ang., promin. ribbed; sep. erect; ls. divided . . . . *Barbarea* 30

Fr. lin. flat. 1 rib. or sev. veins; fl. white; rad. ls. in tuft . . . *Arabis* 31

Fr. flat, no veins; fl. white or pink . *Cardamine* 32

Fr. lin. cylind. or 4-ang.; fl. yell.; ls. divided . . . . . *Sisymbrium* 38

Fr. lin. 4-ang. 1-veined, keeled; fl. yell.; ls. simp. . . . . *Erysimum* 39

B. *Fr. beaked; lower ls. divided:*
(1) *Fr. lin. nearly cylind. seeds in 1 row; fl. yell. sep. erect.* . . . . . *Brassica* 42
(2) *Fr. compressed, seeds in 2 rows; fl. yell. sep. spread* . . . . . *Diplotaxis* 43
C. *Fr. jointed, tapering, inflated, many-seeded* *Raphanus* 55

II. *Fruit broad, short—silicula:*
A. *Fr. 2-valved:*
(1) *Fr. inflated, or dorsally compressed—partition broad:*
(a) *Fr. compress. round, few-seeded; fl. wh. or yell. pet. ent.* . . . . . *Alyssum* 33
(b) *Fr. obl. flat, many-seeded in 2 rows; fl. wh. or yell. pet. ent.; rad. ls. in tuft* *Draba* 34
(c) *Fr. obl. short or lin. flat or inflated; fl. wh. pet. 2-cleft; rad. ls. in tuft* . *Erophila* 35
(d) *Fr. glob. inflat. keeled, many-seeded, veined; fl. white, pet. ent.* . . . . *Cochlearia* 36
(e) *Fr. ov. inflated, nerved, beaked, many-seeded; fl. yell.; pl. tall, st. ls. eared* . *Camelina* 40
(2) *Fr. laterally compressed—partition narrow:*
(a) *Fr. 3-ang. keeled, many-seeded; fl. small white* . . . . . *Capsella* 44
(b) *Fr. ov. compressed notched, keeled, cells 1 seeded; fl. white* . . . . . *Lepidium* 46
(c) *Fr. obov. flat, notched, winged, many-seeded; fl. white* . . . . . *Thlaspi* 47
B. *Fr. jointed, each joint 1-seeded:*
(1) *Fr. 2-jointed, broad, kidney-shaped, wrinkled; plant prost., ls. divided; fl. wh.* *Coronopus* 45
(2) *Fr. flat, obl. keeled, droop.; fl. yell.; st.-ls. eared* . . . . . *Isatis* 51
(3) *Fr. ang. 2-jointed—lr. obconical, upper sword-shaped; fl. pale purp.; ls. fleshy; maritime* . . . . . *Cakile* 54
(4) *Fr. 2-jointed—lr. seedless, upper glob. 1-seeded; fl. white; ls. broad, wavy, fleshy; maritime* . . . . . *Crambe* 53

28 CHEIRANTHUS L.

88 ***Cheiri** L. *Wallflower.* Walls, rocks. 6-15 in. Per. 4-5, st. erect, woody at base; ls. lanc. acute, ent., in tufts, usually downy with adpressed, forked hairs; fl. large bright yell.; sep. erect, stigma shortly 2-lobed, spread.; fr. compressed, 4-ang.

Tynninghame, Tantallon, Dirleton, Salisbury Crags, Edinburgh Castle Rock, Craigmillar, Linlithgow.

29 NASTURTIUM Br. = **RADICULA** Hill. Smooth aquatic; ls. usually pinn. or pinn-fid.; fl. small, white or yell., sep. spread.; fr. lin. round, short, usually curved, veins 0, seeds small in 2 irreg. rows.

89 **officinale** R.Br. = **Radicula Nasturtium** Dr. *Water-Cress.* Strs. 6-30 in. Per. 6-7, usually aquatic; st. solid; ls. pinn. lfts. 7-13 ovate, term.-lft. larger; fl. small, white; pet. twice length of sep.; fr. lin. spread. seeds in 2 very distinct rows.

North Berwick, Aberlady, Longniddry, Inveresk, Duddingston, Ratho, Kirkliston, Linlithgow.

90 **sylvestre** R.Br. = **Radicula pinnata** Moench. *Creeping Yellow Water-Cress.* Wat. pl. 9-12 in. Per. 6-9, st. creep. at base; ls. deeply pinnfid., lfts. lanc., cut; fl. minute, yell.; pet. twice length of sep.; fr. lin. slightly curved.

Arniston, Leith, Roslin, Colinton, Cramond.

91 **palustre** D.C. = **terrestre** Sm. = **Radicula palustris** Moench. *Marsh Yellow Water-Cress.* Wet. pl. 6-18 in. Per. 6-7, st. hollow; ls. pinnfid.—lr.-ls. lyrate, lfts. obl. toothed; fl. yell. pet. not longer than sep; fr. inflated, obl. curved.

North Berwick, Drem, Duddingston, Slateford, Linlithgow.

30 BARBAREA Br. St. erect, smooth, ang.; fl. yell.; fr. straight, stiff, 4-ang. acum., with midrib; seeds appar. in 1 row.

93 **vulgaris** R.Br. = **lyrata** Asch. *Yellow Rocket, Bitter Winter Cress.* Damp pl. 1-2 ft. Bi. 5-8, st. erect, stout, furrowed; ls. smooth, glossy, dk.-gr.; lr.-ls. lyrate, upper-ls. undivided, obov. irreg.-toothed; fl. bright yell. in long rac., fl.-buds glob.; pet. twice length of sep.; fr. short, erect.

Haddington, East Linton (var. arcuata Reichb.), Aberlady, Seton Mains, Borthwick, Granton, Ratho, Kirkliston, Kirknewton, Binns.

95 ***intermedia** Bor. *Intermediate Winter-Cress.* Cult. gr. Wa. pl. 9-18 in. Bi. 5-8, st. 3-ang. lf.-segm. many. lr.-ls. lyrate, term.-lobe cord.-ovate, upper-ls. all pinnfid; raceme dense; pet. twice length of sep.; fr. thick, short, ang. with conical pt.

Blackford Hill.

96 ***verna** Asch. = **praecox** Br. *American Cress.* Cult. gr. Wa. pl. 9-20 in. Bi. 6-7, ls. pinnfid., lobes lin.-obl.; rac. close; pet. thrice length of sep.; style very short, thick; ped. stout; fr. long, knotted, spread.

Leith, Braids, Comiston, Kirliston, Banks of Almond.

31 ARABIS L. St. erect; rad. ls. in tufts, often toothed; st.-ls. ent. sess. or clasp; fl. small white; fr. lin. flat, keeled.

101 **hirsuta** Scop. *Hairy Rock Cress.* Dry pl., walls. 9-18 in. Bi. 6-8, rt.-ls. narr. into stalk; st. stiff, erect, clothed with hairs and many adpressed clasp. ls.; fl. small, white; fr. 1-2 in. narr. straight, adpressed to st. in long rac.; seeds in 1 row.

North Berwick, Gullane, Longniddry, Brunstane Castle, Salisbury Crags, Dalmahoy, Carriden.

102 **Turrita* L. *Tower Wall Cress.* Old Walls. 1-2 ft. Per. 5-6, plant rough, hoary with very short, forked hairs; ls. ent. st.-ls. clasp. obl.-lanc. with rounded ears; fl. yell.-white; fr. 3-4 in. curved on one side; seeds winged.

Linlithgow, Kinneil, Avonbridge.

32 CARDAMINE L. Ls. mostly pinn.; fl. white or pink; fr. flat. narr. lin. veins 0, seeds in 1 row.

104 **amara** L. *Large-flowered Bitter Cress.* Wat. pl. 9-24 in. Per. 4-6, st. ang. with runners; ls. pinn., lfts. 5-7 ov.-obl. lfts. of st.-ls. more ang.; fl. large, white; pet. erect. thrice length of sep.; sta. as long as pet., *anth. violet*, style long. slender.

East Linton (var. erubescens Paterm.), Inveresk, Borthwick, Roslin, Slateford, Balerno, Carribber.

105 **pratensis** L. *Cuckoo-flower, Lady's Smock.* Mead. 9-24 in. Per. 4-6, st. round; ls. pinn., lfts. of lr.-ls. stalked, toothed,—of upper ls., lanc. ent.; fl. large, lilac, pet. thrice

as long as sep., spread.; sta. half as long as pet., anth. yell.; style short.

North Berwick, Aberlady, Longniddry, Inveresk, Arniston, Mid-Calder, South Queensferry, Abercorn, Hopetoun.

106 **hirsuta** L. *Hairy Bitter Cress.* Damp pl. 4-12 in. An. 4-8, st. nearly straight, stiff, hairy, leafy; ls. pinn., segm. small, lr. lfts. ov.-toothed, upper lfts. narr.; pet. small, erect, white; sta. 4; fr. erect.

Dunbar, Borthwick, Roslin, Slateford, Ratho, Dalmahoy, Abercorn.

107 **flexuosa** With. = **sylvatica** Link. *Wood or Wavy Bitter Cress.* Woods, &c. 6-12 in. Per. 4-9, st. wavy, leafy; ls. pinn. lfts. of upper ls. narr.; fl. small; pet. erect, white, twice as long as sep., style long; fr. erect on spread. stalks.

Dunglass, Auchindinny, Dalmahoy, Carriden.

33 *ALYSSUM* L. Hoary with short adpressed forked hairs; fl. white or yell.; pet. ent.; fr. compressed, roundish with broad partition, 2-8-seeded.

110 *incanum* L. *Alyssum.* Wa. pl. 6-12 in. An. 6-9, ls. lanc. hoary; fl. small, white; sep. decid.; fr. ellip.

Seton Mains, Musselburgh, Portobello, Leith.

111 *Alyssoides* L. = *calycinum* L. *Madwort.* Wa. pl. 3-8 in. An. 6-8, ls. obl.-lanc., hoary, narr. at base; fl. yell., sep. persist.; fr. round, downy.

North Berwick, Dirleton, Crichton, Duddingston, Musselburgh, Leith.

34 DRABA L. Small plant, hoary with forked hairs; ls. mostly in rad. rosette, small, simp., ov., hairy; fl. small, white, *pet. ent.*; fr. obl. flat, partition broad, many-seeded.

113 **muralis** L. *Wall Whitlow-grass, Rock-Cress.* Old walls, &c. 4-12 in. An. 4-5, st. slend., wavy, leafy; ls. rough, rosette-ls. ov.-obl. toothed, st.-ls. smaller ov.-cord. clasp; fl. very small, white, pet. ent.; ped. spread.; fr. ellip. flat, smooth.

Port Seton, Arniston, Trinity, Corstorphine.

35 EROPHILA D.C. = **DRABA** L. Small plant, hoary with forked hairs; ls. *all* in rad. rosette; fl. minute. white, pet. 2-*cleft*; fr. obl. or lin. flat, or inflated.

117 **verna** E. Meyer. *Common Whitlow-grass.* Walls, &c. 1-6 in. An. 3-6, st. leafless, single, slend.; rosette ls. lanc. acute, toothed, hairy; fl. white, minute; pet. very deeply notched; fr. flat. obov.-lanc.

Dunglass, Cheese Bay (var. stenocarpa Jord.), Aberlady, Blackford Hill, Auchencorth, Dalmahoy, Kaimes, Cramond Island, Blackness.

36 COCHLEARIA L. Ls. simp. fleshy; fl. small, white, pet. ent.; fr. glob. partition broad, dorsal vein promin., inflated, many-seeded.

119 **officinalis** L. *Common Scurvy-grass.* Sea-coast. 4-10 in. Per. 5-8, rad. ls. stalked, kidney-shaped, deeply cord.; st.-ls. sess. obl. wavy, clasp.; style very short; fr. glob.; seeds large.

North Berwick, Bass Rock, Aberlady, Cramond, Dalmeny, Hopetoun, Blackness.

121 **micacea** E.S.M. *Alpine Scurvy-grass.* Highlands. 2-4 in. Per. 6-8, plant prostr. small; ls. small; fl. with relatively large, long-clawed pet.; pod much longer than broad.

Dolphinton.

122 **danica** L. *Stalked Danish Scurvy-grass.* Sea-coast. 1-12 in. Bi. 4-6, rad. ls. cord.; st.-ls. stalked, lobed (upper ones nearly sess.); fr. ovoid; seeds small.

Catcraig, Skateraw, North Berwick, Cheese Bay, Cramond Island, Dalmeny.

125 **Armoracia* L. = *Armoracia rusticana* Rupp. *Horse-radish.* Wa. pl. 2-3 ft. Per. 5-7, rad. ls. very large, obl. crenate, long-stalked, st.-ls. long, lanc., sess.; fl. white; fr. 4-seeded.

Longniddry, Port Seton, Dalkeith, Duddingston, Gilmerton, Craigmillar, Comiston, Leith.

37 *HESPERIS* L.

126 **matronalis* L. *Dame's Violet, Queen's Gilliflower.* Garden-escape. 2-3 ft. Bi. 5-6, st. erect, stout, leafy; ls. ov.-lanc. acum. toothed; fl. large, lilac; pet. obov.; sep. erect; fr. long, constricted between seeds, smooth, erect, on spread. ped.

Tynninghame to East Linton, Inveresk, Roslin, Colinton, Juniper Green, Barnton, Kirkliston, Abercorn.

38 SISYMBRIUM L. Ls. divided; fl. small, yell. or white, in loose rac: fr. lin. nearly cylind., veined, seeds in 1 row.

127 **Thalianum** Gay. = **Arabis Thaliana** L. *Thale Cress.* Dry walls. 6-12 in. An. 5-9, st. slend.; ls. nearly all rad., obl.-lanc., toothed, downy; fl. white, minute; fr. lin. bluntly 4-ang., veined, spread.

Woodhall Dean, Inveresk, Prestonfield, Arthur's Seat, Granton, Brunstane Castle, Kirknewton, Linlithgow, Kipps.

128 **officinale** Scop. *Hedge Mustard.* Roadsides. 1-3 ft. Bi. 6-7, strong; st. hairy; ls. deeply pinnfid. hairy; segm. lanc. curved backwards, end one larger; fl. very small, yell.; fr. awl-shaped, downy, very closely adpressed to stem.

Longniddry, Inveresk (var. leiocarpum D.C.), Arthur's Seat, Ratho, Abercorn, Linlithgow.

129 **pannonicum* Jacq. = *altissimum* L. Wa. pl. 1-2 ft. An. 6-8, st. rather hairy; ls. pinnfid., eared at base; sep. spread.; fr. spread. on thick ped.

Prestonhall, Levenhall, Roslin, South Queensferry, Newliston.

131 ***Sophia** L. *Flixweed.* Wa. pl. 1-2 ft. An. 6-8, st. slightly hairy; ls. 2-3-pinnfid, hairy, segm. short, lin.; fl. gr.-yell. pet. shorter than sep.; ped. spread; fr. lin. spread., smooth, constricted between seeds.

Longniddry, Borthwick, Eskmouth, Craigmillar, Lasswade, Portobello, Slateford, Currie.

133 **Alliaria** Scop. = **Alliaria officinalis** D.C. *Garlic Mustard, Jack-by-the-hedge, Sauce-alone.* Hedge-bks. 2-3 ft. Bi. 5-6, strong; ls. large, thin, stalked, cord. coarsely-toothed veined, with garlic odour when bruised; fl. white; fr. erect, long. 4-ang. on short, stout ped.

Longniddry, Dalkeith, Gogar, Ratho, Kirkliston, Hopetoun.

39 ERYSIMUM L. Slightly hoary with adpressed, forked hairs, rarely smooth; ls. ent. simp.; fl. yell.; fr. lin. 4-ang. keeled. seeds in 1 row.

134 ***Cheiranthoides** L. *Treacle Mustard.* Wa. pl., &c. 6-20 in. An. 6-8, st. stiff; ls. obl.-lanc., ent. or slightly lobed; fl. small, pale yell.; fr. spread.

Seton Mains, Musselburgh, Leith, Grangemouth.

135 *orientale* Mill. = *perfoliatum* Crantz. = *Conringia orientalis* Dum. *Hare's-ear Treacle Mustard.* Wa. pl. 1-2 ft. An. 6-9, ls. smooth, glaucous, obov. cord. ent., st.-ls. clasping with rounded ears ; fl. yell.-white ; fr. promin. ribbed.

Inveresk, Leith, South Queensferry.

40 *CAMELINA* Crantz.

136 **sativa* Crantz. *Gold of Pleasure.* Wa. pl. 1-3 ft. An. 6-7, ls. lanc. nearly ent., rad. ls. stalked, st.-ls. sess. clasp. with pointed ears ; fl. small, yell. ; fr. obov. (partition broad), inflated, long-stalked.

Inveresk, Leith, Newliston.

42 BRASSICA L. Lower ls. usually deeply pinn. or lyrate, upper ls. often ent. ; fl. yell. in rac., sep. erect ; fr. lin. cylind or ang., more or less beaked ; seeds in 1 row, usually glob.

139 **Napus* L. *Rape, Cole-seed.* Cult. gr., Wa. pl. 1-3 ft. Bi. 6-8, ls. glauc., lr.-ls. lyrate toothed, smooth ; upper ls. narr. below, cord. clasp. ; fl. yell., small ; sep. erect ; fr. knotted.

Leith, Edinburgh Castle Rock, Slateford.

141 ***Rapa** L. *Turnip.* Wa. pl. 1-3 ft. Bi. 5-7, lr.-ls. hairy, lyrate, st.-ls. glauc., pinnfid, upper clasp. acum. ; fl. small, bright yell. ; sep. erect.

Aberlady, Braids, Craigleith, Penicuik, Linlithgow.

144 **nigra** Koch. = **Sinapioides** Roth. = **Sinapis** nigra L. *Black Mustard.* Roadsides. 1-4 ft. An. 6-8, lr.-ls. large, deeply divided, lyrate ; upper ls. lin.-lanc. ent. smooth ; fl. gr.-yell., sep. spread. ; sta. long ; fr. 4-ang. closely adpressed, beak short.

Leith, Slateford, Bo'ness, Avonside.

145 **adpressa** Boiss = **incana** Doell. = **Sinapis incana** L. *Hoary Mustard.* Roadsides. 1-3 ft. Bi. 6-8, st. much branched ; ls. hoary, lr.-ls. lyrate, upper-ls. ent. lin.-lanc. ; fl. yell. ; sep. spread. ; fr. very short, closely adpressed, beak thick, 1-seeded, seeds ovoid.

Eskbridge.

146 **arvensis** O. Kuntze. = **Sinapistrum** Boiss = **Sinapis arvensis** L. *Charlock, Wild Mustard.* Cult. gr. 1-2 ft. An. 6-8, plant rough with few, stiff, spread. hairs ; ls. ov.-lyrate, stalked ; upper ls. sess. wavy, toothed ; fl. large, bright yell. ; sep. spread. ; fr. nearly cylind., knotty, 3-nerved, spread., beak 1-seeded.

Dunbar, Tranent, Port Seton, Comiston, Boghall, Ratho, Kirknewton, Abercorn, Carriden.

147 ***alba** Boiss. = **Sinapis alba** L. *White Mustard.* Cult. gr., Wa. pl. 1-3 ft. An. 6-8, plant hispid with reflexed hairs ; ls. pinnfid. lyrate, lobes coarsely toothed ; fl. large, yell., sep. spread. ; fr. spread. cylind. knotty, 5-nerved, beak long, sword-shaped.

Tynninghame, Tranent, Dalkeith, Leith, Slateford, Carriden, Linlithgow.

43 DIPLOTAXIS D.C. = **BRASSICA** Boiss = **SINAPIS** Sm. Ls. very variable ; fl. yell., sep. spread. ; fr. compressed, seeds oval, in 2-rows.

149 **tenuifolia** D.C. *Narrow-leaved Wall-Rocket.* Walls, Wa. pl. 1-2 ft. Per. 6-9, st. leafy, branched, woody below ; ls. irreg. pinn. or lin.-lanc. sinuate, toothed, acute, smooth, glauc. ; fl. large, pale yell., sep. spread. ; fr. slend. narr. at both ends, erect.

Longniddry, Morrison's Haven, Port Seton, Leith, Murrayfield, Slateford, Abercorn.

150 ***muralis** D.C. *Wall Rocket.* Wa. pl. 6-18 in. An. 6-9, st. simp. nearly leafless, hispid ; ls. mostly rad. smooth, ovate-lanc. sinuate, toothed or pinnfid ; fl. small ; fr. narr. at top only.

Kilspindy, Morrison's Haven, Musselburgh, Portobello, Leith.

44 CAPSELLA Medic.

151 **Bursa-pastoris** Medic. *Shepherd's Purse.* Cult. gr., Wa. pl., &c. 6-18 in. An. 2-11, plant rather rough with forked hairs ; ls. very variable, rad. ls. spread. on ground, lanc., pinnfid, or simp., toothed, upper-ls. clasp. eared ; rac. long, loose ; fl. small, white ; fr. compressed, ob-cord. keeled., many-seeded.

Everywhere.

45 CORONOPUS Hall. = **SENEBIERA** Poir. Plant prostrate; ls. pinn. very variable; fls. minute, white, in slend. lat. rac.; fr. kidney-shaped, roughly wrinkled (partition narr.), 2-jointed, 2-seeded.

152 ***didymus** Sm. *Lesser Wart Cress.* Wa. pl. 6-12 in. An. 6-9, ls. finely cut; rac. slend.; fl. minute, often only 2 sta.; fr. on slend. ped. notched, separating into 2 wrinkled ovoid nuts—strong smell.

Dunbar, Haddington, Luffness, Leith, Linlithgow.

153 **procumbens** Gilib. = **Ruellii** All. = **verrucarius** M. & T. = **Senebiera Coronopus** Poir. *Swine's Cress.* Wa. pl. 3-8 in. An. 6-9, plant pale gr. glauc.; ls. coarsely pinnfid, variable; fl. small, white, in lateral clusters, style promin.; fr. larger, kidney-shaped, ent., deeply wrinkled, nearly sess.

Dunbar, Tantallon, Gullane, Dirleton, Musselburgh.

46 LEPIDIUM L. Variable plant with small white fl. in clusters, pet. and sta. often fewer; fr. ov. compressed, ent. or notched, keeled or winged (partition narr.), cells, 1-2 seeded.

154 ***latifolium** L. *Dittander, Broad-leaved Pepperwort.* Salt-marshes, &c. 2-4 ft. Per. 7-8, ls. large, ov.-lanc. ent., or toothed, lr.-ls. long-stalked, upper nearly sess. narr. at base; fl. small, in leafy pans., style minute; fr. oval, ent. downy.

Tantallon, Cheese Bay, Kinneil.

155 ***ruderale** L. *Narrow-leaved Pepperwort.* Cress. Wa. pl. 6-12 in. An. 5-7, st. wiry; lr.-ls. 2-pinnfid, lobes narr., st.-ls. lin. ent.; fl. minute, pet. 0, sta. 2.; fr. oval, keeled, winged at tip; spread.

Prestonpans, Portobello, Leith, Kirkliston.

157 *sativum* L. *Garden Cress.* Wa. pl. 6-18 in. An. 6-8, variable; lr. ls. lobed, pinn. or 1-2 pinnfid., upper ls. ent. sess.; fl. white, style minute, sta. 6; fr. roundish, winged—pungent taste.

Musselburgh, Salisbury Crags, Leith, Slateford.

158 **campestre** Br. *Mithridate Pepperwort, Field Cress.* Fields, Wa. pl. 6-12 in. Bi. 6-8, plant usually hoary; st. sol. erect, branched at top; ls. downy, ent. toothed or

pinnfid, lr.-ls. obl. stalked, st.-ls. lanc. clasp. with pointed ears; fl. very small, style very short, anth. yell.; fr. broad-oval, scaly, winged at top, spread.

Dunglass, Seton Mains, Musselburgh, Portobello, Leith, Hopetoun, Linlithgow.

159b. **canescens** G. & G. = **Smithii**. Hook. = **hirtum** Sm. *Smooth Field Pepperwort, Smith's Cress.* Fields, &c. 6-12 in. Per. 6-8, st. branched from base; ls. hairy, toothed, lr.-ls. obcord., st.-ls. lanc. clasp. eared; fl. white; style longer than notch; anth. violet; fr. ov. notched, winged at top, nearly smooth.

Dunglass, Tynninghame to East Linton, Roslin, Linlithgow, Kinneil.

160 **Draba* L. *Hoary Cress.* Wa. pl. 1-2 ft. Per. 5-6. plant hoary; st. stout, ls. obl. ent. or toothed, lr.-ls. stalked, st.-ls. clasp. eared; fls. many, small, white, on long ped. in broad, flat corymb.; fr. cord. inflated.

Aberlady, Eskmouth, Borthwick, Inveresk, Duddingston, Salisbury Crags, Penicuik, Craiglockhart, Slateford, Linlithgow, Grangemouth.

47 THLASPI L. Ls. usually undivided, rad.-ls. in rosette, upper-ls. clasp.; fl. small, white; fr. obovate, notched, winged, many-seeded.

161 ***arvense** L. *Field Penny-Cress, Mithridate Mustard.* Wa. pl. 6-18 in. An. 5-7, plant glauc.; st. slend. erect; rad. ls. soon disappear, st.-ls. obl. toothed, clasp., eared, smooth; fl. small; fr. round, flat, with very broad wings, deep notch at top.

Tynehead, Musselburgh, Leith, Roslin, Auchindinny, Slateford, Kirkliston, Blackness.

49 TEESDALIA Br.

166 **nudicaulis** Br. *Shepherd Cress, Naked-Stalked Teesdalia.* Dry bks. 2-4 in. An. 4-7, st. usually bare; rad. ls. in rosette, usually lyrate-pinnfid.; fl. very small, white, 2 pet. larger; fr. nearly round, flat, narr.-winged, notched at top.

Tynninghame to East Linton, Braids, Dalmahoy.

51 *ISATIS* L.

168 **tinctoria* L. *Dyer's Woad.* Wa. pl. 1-4 ft. Bi. 7-9, plant glauc. ; rad. ls. obl. cren. stalked, st.-ls. narr.-lanc. clasp., eared ; fl. small, yell. ; fr. drooping, obl. rounded, flat, keeled.

Aberlady, Prestonpans, Musselburgh.

53 CRAMBE L.

170 **maritima** L. *Sea Kale.* Sea-cliffs, &c. 1-3 ft. Per. 6-8, plant stout ; ls. roundish, broad, waved, coarsely toothed glauc., lr. stalked, upper ls. few, smaller ; fl. white in large pan. ; fr. 2-jointed,—lr. seedless, stalk-like, upper glob., fleshy, 1-seeded.

Lamb Island [Cramond to South Queensferry].

54 CAKILE Mill.

171 **maritima** Scop. *Purple Sea-Rocket.* Sandy coast. 1-2 ft. An. 6-8, plant glauc. ; branches zigzag ; ls. few, fleshy, irreg. pinnfid., slightly toothed ; fl. lilac or white ; fr. 2-jointed, sharply 4-ang., 2-seeded, upper part sword-shaped.

Gullane, Aberlady, Gosford, Longniddry, Dalmeny, South Queensferry.

55 RAPHANUS L. Plant coarse, hairy ; lr.-ls. pinnfid. ; fl. rather large ; fr. long, jointed, (lomentum.) tapering, seeds in pithy substance.

172 **Raphanistrum** L. *Wild Radish, Jointed Charlock, Runch.* Wa. pl. 1-2 ft. An. 6-7, plant rough with short hairs ; ls. lyrate-pinnfid., upper ls. often narr. ent. ; fl. yell.-white, veined purp. in long rac. ; fr. long, inflated, smooth, with 3-7 1-seeded joints.

North Berwick, Dirleton, Gullane, Newhaven, Comiston.

7. RESEDACEAE.

Mignonette Family—Herbs with alter. ls., irreg. greenish fl. in term. rac., sep. 4-8, pet. 4-8, deeply cleft, sta. many, stigma 3-lobed, carpels 3, ovary 1-celled, placent. parietal ; fr. many-seeded capsule.

56 RESEDA L. Ls. very varied ; fl. irreg, sep. persist, ent. or 4-6-cleft ; pet. ent. or 4-6-cleft ; sta. 10-40 ; ovary 1-celled ; fr. capsule.

174 **alba* L. *White Mignonette.* Wa. pl. 1-2 ft. Bi. 7-8, plant glauc. ; ls. all pinnfid., crowded at base of st., segm. lin. acute, ent. wavy ; fl. white, pet. 5-6 all 3-fid., sep. 5-6, lin.-lanc. ; fr. ovoid, wrinkled.

Salisbury Crags, Leith, Bo'ness.

175 **lutea** L. *Wild Mignonette.* Wa. pl. 1-2 ft. Bi. 6-8, ls. very variable, always deeply divided, 3-fid. or pinn. ; fl. gr.-yell. in long rac. pet. 5 very unequal, only one ent. ; sep. 5-6 lin. ; fr. obl., wrinkled.

North Berwick, Aberlady, Longniddry, Musselburgh, Leith, Slateford.

176 **Luteola** L. *Dyer's Weed, Weld, Yellow-weed.* Wa. pl. 2-3 ft. Bi. 7-9, st. stiff., scarcely branched ; ls. *undivided*, long, lanc. waved at edge, fl. yell.-gr. in long stiff spikes, sep. 4, pet. 4 (or 5), very unequal, cleft—lower one only entire ; fr. nearly globose.

North Berwick, Gullane, Longniddry, Straiton, Roslin, Blackford Hill, Craigleith, Slateford, Ratho.

8. CISTACEAE.

Rock-rose Family—Uuder-shrubs with oppos. ent. ls. ; white or yell. fl., reg. ; sep. 5, pet. 5, sta. many, carpels 3, ovary 1-celled, placent. parietal, stig. 3 ; fr. 3-10 valved capsule.

57 HELIANTHEMUM Mill. Low spread. shrub ; ls. oppos. ent. ; sep. 5, pet. 5, sta. many ; capsule 3-valved, many-seeded.

179 **Chamaecistus** Mill = **vulgare** Gaertn. *Rockrose.* Dry hilly pl. 3-10 in. Per. 7-9, prostr. ; ls. with fringed stipules, very var., oval or lin.-obl. oppos., hoary beneath ; fl. yell. large, in rac., with bracts, 2 outer sep. very small ; fr. capsule on deflexed twisted ped.

Shippath Dean, North Berwick, King's Park, Blackford Hill, Linlithgow.

9. VIOLACEAE.

Violet Family—Small herbs with alter., stip. ls.; fl. irreg., stalked, axill.; sep. 5, pet. 5, spur 1, sta. 5, carpels 3, ovary 1-celled, placent. parietal, style 1 with hooded stigma; fr. capsule.

58 **VIOLA** L. Ls. rad. or alter., stip.; fl. sol. on axill. or rad. ped., irreg.; sep. 5, produced at base as "calycine appendages"; pet. 5, lowest produced into spur at base; sta. 5, with anthers forming tube round ovary, the 2 lower being produced into short spur at base; style with thickened or hooked stigma; ovary 1-celled; fr. capsule opening in 3 valves. The spring flowers yield little or no seed, but the autumn, inconspicuous (cleistogamous) flowers, without petals, on short pedicels, yield abundant seed.

(1) *Violet—stip. small, style slender, stigma hooked or flat.*

181 **odorata** L. *Sweet Violet.* Hedgerows. 3-5 in. Per. 3-4, rhiz. scaly, stolons rooting: stip. ov.-lanc. fringed, pt. short; ls. kidney-shaped, cord. glossy; fl. dk. bluish-purp.; ped. smooth or slightly downy with depressed hairs; bracts usually *above mid. of ped.*; sep. ov. pet. ovate, *deep violet* inside with whitish base, dark on outside with *deep violet spur*; fr. roundish, 3-sided, downy capsule often tinged purp.—fragrant.

Oxgangs, Morton, Dalhousie, Roslin, Colinton, Carlowrie, Gateside, Linlithgow.

182 **hirta** L. *Hairy Violet.* Pasts. 3-6 in. Per. 4-6, tufted, no stolons; stip. lanc. acum. toothed; ls. 3-ang.-oval.-obl. cord., hairy all over, cren.; petiole-hairs spread.; fl. bluish-violet, sep. ov. fringed; spur long, hooked; *bracts usually below mid. of ped.*; fr. roundish, downy capsule, mottled purp.

Gullane, Gosford, Longniddry, Roslin, Auchindinny, Blackford Hill, Corstorphine, Cramond, Currie, Dalmeny, Hopetoun, Carribber, Linlithgow.

184 **palustris** L. *Marsh Violet.* Bogs. 3-6 in. Per. 4-7, slend. rooting stolons; stip. ov.-acum., membr., tinged gr.-red, toothed; ls. kidney-shaped, cord., few, *gen.* 2, smooth; fl. few. lilac, with dark branched veins; sep. ov. with transluc. margin, spur blunt, flat, short; fr. smooth, droop. caps. on erect stalk.

Gullane, Arniston, Roslin, Ravelrig, Hallyards.

186 **silvestris** Lam. = **sylvatica** Fr. = **Reichenbachiana** Jord. = V. **canina**. L. **var. sylvatica** Fr. *Wood Violet.* Woods, &c. 2-6 in. Per. 3-5, *flowerless rosette of ls.*; fl.-branches axill. (many prostr. cleist. branches remain over winter); stip. lanc. taper. to fine pt., fringe of long teeth; ls. smooth, glossy, cord. long-tapering, *metallic look in winter*; st.-ls. smaller with short pt.; fl. small, lilac, pet. narr.-obl. *not overlapping*, upper *bending back sharply*; spur compressed, slend. ent. long, gen. darker than pet.; fr. smooth, ang. acute.

Gosford, Arniston, Linlithgow.

187 **Riviniana** Reichb. = V. **sylvatica var. macrantha** Fr. = V. **sylvatica subsp. Riviniana** Syme. = V. **silvestris** Lam. **forma Riviniana** R. & F. *Wood Violet.* Woods, &c. 2-6 in. Per. 4-9, *flowerless rosette of ls.*; fl.-branches axill. (many prostr. cleist. branches remain over winter); stip. long, taper. irreg.-fringed,—lr. membr. purplish, upper green; ls. smooth, kidney-shaped or broadly ovate-cord. with short pt.; fl. large, widely open, of *slaty blue, pet. all overlapping*, lowest with dark, branched veins to pt.; sep. narr.-lanc., *cal.-appends. square in outline, notched*, very noticeable in fr.-stage; spur thick, *inflated*, furrowed or notched at end, *whitish*; fr. capsule smooth, sharply ang., furrowed.

Gifford, Gullane, Gosford, Arniston, Roslin, Balerno, Dalmahoy, Kirkliston, Hopetoun, Carribber.

189 **canina** L. *Dog Violet.* Heathy pl. by sea. 2-4 in. Per. 4-6, *no flowerless rosette*; st. *woody below*, slend. fl.-branches many, axill.; stip. short. lanc. ent. (or with 2-4 teeth) lower, brown; ls. dk.-gr. cord. ov.-obl. blunt, with scattered, short hairs above, shortly stalked; fl. *pure blue* with white eye; sep. lanc. cal.-appends. round, short; pet. long, narr. folding inward; *spur yellow*, short, thick, curved; fr. smooth, ov.-obl. bluntly 3-angled.

Luffness, Gullane (var. pusilla).

(2) *Pansy—stip. leaflike, pinnfid; style club-shaped, stigma inflated.*

193 **tricolor** Eng. Bot. = **variata** Jord. *Wild Pansy, Pansy-Violet, Heart's-ease.* Cult. gr. 4-12 in. An. 4-9,

very variable ; ls. ov.-obl. cren. rather hairy, long-stalked ; stip. *large, leaflike*, lyrate ; *fl. large*, purp., blue, yell. variously mixed or alone ; sep. lanc. acum ; *pet. spread. longer than sep.* ; spur short, as long as cal.-append. ; fr. ovoid capsule.

Tynehead, Penicuik, Roslin, Balerno, Dalmahoy, Kames, Niddry Castle, Blackness.

arvensis Murr. = "arvenses group" Drabble. *Field Pansy.* Cult. gr. 4-12 in. An. 4-10, ls. and stip. with narr. lobes ; fl. white or pale yell. ; pet. *erect, not longer than sep.* ; fr. capsule nearly glob.

East Linton, Haddington, Borthwick, Fushiebridge, Carriden, Hopetoun.

201 **arvatica**. Jord. *Field Pansy.* Cult. gr. 5-12 in. An. 4-10, st. zigzag, *very wavy*, downy ; ls. small, slightly downy, lr.-ls. ov. upper-ls. lanc. acute ; stip. lyrate ; *fl.-stems widely forked*, sep. narr.-lanc. acute ; pet. gen. pale with violet tinge, *not longer than sep.* ; spur short, not longer than short, obl. cal.-append.

Swanston.

203 **lutea** Hads. *Wild Mountain Pansy.* Hilly past. 4-9 in. Per. 6-8, *rhizome* slend. ; st. slend., ls. obl. cren. small ; stip. small, palm.-lobed ; fl. large, long-stalked ; sep. lin. or lin.-lanc. acum. smooth, cal.-append. short. ; pet. bright yell. *twice as long as sep.*, lowest pet. broad ; spur slender, much longer than cal.-appends.

East Linton, Moorfoots, Blackford Hill, Boghall, Balerno, Dalmahoy, Ravelrig (var. amaena), Kaimes, Binny Crag, Carriden, Linlithgow.

10. POLYGALACEAE.

Milkwort Family—Small herbs with alter. simp. ls. ; irreg. fl. in rac., sep. 5, pet. 3-5, sta. 8, carpels. 2, ovary 2-celled, placent. axile ; fr. flat capsule.

59 POLYGALA L. Plant small ; ls. small, simp. alter. ; fl. irreg. sep. 5—2 inner petal-like—"wings" ; pet. 3 united, lr. keel-shaped ; sta. 8 in 2 bundles, united below in open tube ; style 1 ; fr. 2-celled capsule, seeds downy, with 3-ptd. aril at base.

207 **vulgaris** L. *Milkwort.* Heathy pl. 1-10 in. Per. 6-9, st. prostr. ascend. ; lr.-ls. oval, crowded, upper lin.-lanc. alter. ; rac. 10-20 fld., 3 bracts at foot of ped. ; fl. droop. blue, pink, white ; 3 outer sep. small, lin. gr., 2 inner sep. larger, coloured, veined, as broad as fr., persist. ; pet. very small,—2 linear, 1 keel-shaped,—crested ; fr. round, gr. capsule with narr. wing, notched at top.

Lammermoors, Fala, Braids, Borthwick, Penicuik, Dalmahoy, Kirknewton, Manuel.

208 **dubia** Bell. = **oxyptera** Reichb. *Milkwort.* Dry sandy pl. 1-6 in. Per. 6-8, more prostr. spread ; st. wavy ; ls. lin. small, distant ; fl. small, usually blue, cal.-wings narrower than fr.

Haddington.

209 **serpyllacea** Weihe. = **ciliata** Lebel = **depressa** Wend. Heaths. 1-10 in. Per. 6-9, st. slend., wiry, postr., wavy ; lr.-ls. spoon-shaped, upper ellipt., almost oppos. ; fl. few, small, deep-blue, cal.-wings as broad as fr.

North Berwick, Arthur's Seat, Balerno, Pentlands, Drumshoreland.

12. CARYOPHYLLACEAE.

Pink or Campion Family—Herbs with stems usually swollen at joints ; ls. simp, ent. oppos. ; fl. in cymes, reg., white or red, sep. 4-5, pet. 4-5, sta. 8-10, styles 2-5, ovary 1-celled, placent. central ; fr. capsule opening by apical teeth, or short valves, many-seeded.

Key to Genera.

I. *Sep. united, 4-5 lobed, or toothed :*
- A. *Calyx with 2 oppos. bracts or scales at base, styles 2* . . . . . *Dianthus* 61
- B. *Calyx without scales :*
  - (1) *Styles 2, capsule 4-valved* . . . *Saponaria* 62
  - (2) *Styles 3, capsule 6-valved* . . . *Silene* 63
  - (3) *Styles 5, capsule 5-10-valved* . . *Lychnis* 65

II. *Sepals distinct, 5 :*
- A. *Capsule cylind. :*
  - (1) *Pet. notched, styles 4-5, sta. 4-10, caps. 10-valved* . . . . . *Cerastium* 67

B. *Capsule globose:*
(1) *Pet. 2-fid., styles* 3, *sta.* 10, *caps.* 6-*valved* *Stellaria* 69
(2) *Pet. entire, styles* 3, *sta.* 8-10, *caps.* 6-*valved* . . . . . *Arenaria* 70

III. *Sepals* 4, *pet.* 4. *or* 0, *styles* 4-5, *sta.* 4-10, *caps.* 4-5 *valved* . . . . . *Sagina* 71

IV. *Styles* 5, *caps.-valves oppos. sep.* . . . *Spergula* 72
Styles 3 (*or* 5) *caps.-valves alter. with sep.* . . *Spergularia* 73

61 DIANTHUS. Ls. narr. often tufted, sometimes glauc.; calyx tubular, 5-toothed, with broad scales or bracts beneath; pet. 5, long-clawed, often toothed; sta. 10 united at base, styles 2; fr. capsule opening with 4 valves or teeth at top.

215 **deltoides** L. *Maiden Pink.* Hilly past. 6-12 in. Per. 6-9, ls. lin.-lanc., downy, lr.-ls. blunt, rough-edged; fl. sol. rose-pink with dark circle round mouth; calyx-scales 2, broad, ptd., teeth lanc. acute, minutely fringed; pet. obov., toothed.

Dunglass, East Linton, Traprain, Berwick Law, Dirleton, Arthur's Seat, Blackford Hill, Craiglockhart, Niddry Castle.

62 SAPONARIA L.
221 ***officinalis** L. *Soapwort.* Riv.-bks., &c. 1-3 ft. Per. 8-9, st. stout, leafy; ls. oppos. ovate, acute, ribbed, smooth; fl. large, in dense, flat cyme, pale pink; cal. tubular, pet. ob-cord., styles 2; fr. 4-valved capsule.

Roslin, Slateford.

63 SILENE L. Plant often viscid, calyx tubular, often inflated, veined; pet. with long, narr. claw, and gen. notched ligule or scale at base; sta. 10, styles 3; fr. 6-valved capsule.

223 **Cucubalis** Wibel = **latifolia** R.Br. = **inflata** Sm. *Bladder Campion, White-bottle.* Roadsides, &c. 1-2 ft. Per. 6-8, usually glauc.; st. erect; ls. ov.-obl. acute, smooth; fl. white, droop.; cal. membr. inflated, veined, oft. tinged purp.; pet. deeply cleft. in narr. segm., lig. often absent.

Gullane, Aberlady, Seton Mains, Prestonhall, Straiton, Swanston, Carlowrie, Kirkliston, Linlithgow.

(b) **pubescens** D.C. = **puberula** Jord. = **hirsuta** Gray.—var. covered with soft hairs.

Gullane, Aberlady, Seton Mains, Liberton, Swanston, Ratho, Kirkliston, Linlithgow, Carribber.

224 **maritima** With. *Sea-Campion.* Shingle, &c. 6-12 in. Per. 6-8, st. short, spread.; ls. ov.-lanc, blunt, bract leafy; fl. few, white; cal. inflated, netted; pet. cleft. in broad. segm., with ligule.

Dunbar, North Berwick, Gullane, Bass Rock, Longniddry, Cramond Island, Dalmeny, Abercorn, Blackness.

226 **conica** L. *Striated Corn Catchfly.* Wa. pl. 3-18 in. An. 6-8, hoary with soft gland. hairs; ls. lin.-lanc.; fl. small, pink, cal. tubular-conical, 20-30 furr., teeth very long; pet. obcord., notched.

Craigmillar, Slateford.

228 **anglica** L. *English Catchfly.* Sandy pl. 6-24 in. An. 7-9, hairy, viscid; ls. narr.-lanc.; fl. in leafy racemose cyme, small, pink or white; cal. hairy with bristle-like teeth, gr. downy ribs; pet. obov. with lig. ent or slightly notched; fr. often drooping.

Dirleton, Leith, Slateford.

235 **noctiflora** L. *Night-flowering Catchfly.* Cult. gr., &c. 6-24 in. An. 7-9, ls. ov.-lanc. acute, upper ls. narr.-lanc. fl. larger, pinkish-white, cal. ellip. veined with 10 hairy, gland. ribs, teeth long; pet. deeply 2-fid., rolled up during day, open and fragrant at night.

Dirleton, Aberlady, Longniddry, Inveresk, Leith, Murrayfield.

65 LYCHNIS L. Plant often viscid; cal. tubular, often inflated, 10 or 5-toothed veined; sta. 10, styles 5; fr. capsule open. in 10 or 5 valves or teeth.

238 **alba** Mill. = **vespertina** Sibth. *White Campion.* Cult. gr., &c. 1-2 ft. Per. 6-9, hairy; ls. ov.-lanc. fl. diœcious, open in evening; cal.-tube inflated—male-fl. obov.-obl., fem. ovate—with long lin.-lanc. *straight* teeth; pet. white, deeply 2-fid.; caps. ovoid with 10 *straight teeth.*

North Berwick, Longniddry, Seton Mains, Blackford, Comiston, Ratho, Hopetoun, Mid-Calder, Kirkliston.

239 **dioica** L. = **diurna** Sibth. *Red Campion.* Damp pl., &c. 1-2 ft. Per. 5-8, hairy, ls. ov.-lanc.; fl. diœcious; cal. tube inflated,—male narr., fem. broad, ovate,—with 3-ang., short teeth; pet. red or pink, deeply 2-fid.; fr. caps. glob., with 10 *recurved teeth.*

Gifford, Longniddry, Seton Mains, Dryden, Blackford, Ratho, Dalmeny, Kirkliston, Carribber.

240 **Flos-Cuculi** L. *Ragged-Robin.* Damp pl. 1-2 ft. Per. 5-6, st. ang., hairs deflexed, viscid, reddish above; ls. few lanc.; fl. rose, pet. deeply 4-cleft, segm. lin.; cal.-tube 10-ribbed, red-veined, smooth, teeth short; fr. caps. 5 toothed.

Gullane, Aberlady, Longniddry, Roslin, Balerno, Ratho, Dalmeny, Hopetoun, Carribber.

241 **Viscaria** L. *Viscid or German Catch-fly.* Dry rocks. 12-15 in. Per. 6-7, st. simp. smooth, viscid below joints; ls. lanc. smooth, base fringed with woolly hairs; fl. large, pet. rose, nearly ent., cal.-tube 10-veined, with 5 short teeth; fr. caps. 5-toothed; seeds kidney-shaped, warty.

Arthur's Seat.

243 ***Githago** Scop. = **Agrostemma Githago** L. *Corncockle.* Cult. gr., &c. 1-2 ft. An. 7-8, downy with long, soft, whitish, adpressed hairs; ls. lanc.; fl. few, large, sol. long-stalked; cal. woolly, *teeth lin. leafy, longer than pet.*; pet. obov. ent. or notched, purp.; fr. caps. 5-toothed.

Dirleton, Aberlady, Longniddry, Dalkeith, Leith, Braids.

67 CERASTIUM L. Usually downy; ls. ov.-lanc.; fl. white, in forked cymes; bracts and sep. often membr. at edge; sep. 5 or 4, pet. 5 *notched*; sta. 10, 5, or 4, styles 4-5; fr. caps. open. in twice as many valves as styles.

245 **tetrandrum** Curt. *Sea, Four-stamened, Mouse-ear Chickweed.* Past. nr. sea. 1-10 in. An. 5-7, plant dull gr. with viscid hairs; ls. ovate, bracts broad-ovate, wholly leafy; sep. 4 lanc. acute with narr. membr. edge; sta. 4.

Gullane, Aberlady, Longniddry, King's Park, Braids, Cramond Island, Knock Hill, Linlithgow.

248 **semidecandrum** L. *Small or Five-stamened Mouse-ear Chickweed.* Sandy pl. 1-8 in. An. 4-6, plant downy, sometimes viscid; ls. broad-ovate, *upper-half of bracts membr.*; fl. small; sep. with broad membr. edge.; sta. 5 (or 10 or 4); fr.-st. at first reflex, later erect.

Gullane, Bass Rock, Longniddry, Port Seton, Salisbury Crags, Roslin, Craigmillar, Blackford Hill, Linlithgow.

249 **viscosum** L. = **glomeratum** Thuill. *Broad-leaved Mouse-ear Chickweed.* Fields, &c. 3-10 in. An. 4-9, *plant pale-green*; ls. oval, bracts leafy, hairy; sep. lanc. very acute with narr. membr. edge.; *pet. shorter than sep.*

North Berwick, Gullane, Longniddry, Fala, Arthur's Seat, Balerno, Abercorn, Linlithgow, Carribber.

250 **vulgatum** L. = **triviale** Link. *Common Mouse-ear Chickweed.* Fields, &c. 3-15 in. Bi. 4-9, downy; st. hairy all round; ls. obl.-lanc. *dk. gr.*; bracts with membr. edge.; fl. few.; sep. obl.-ov. blunt with broad membr. edge; *pet. longer than sep.*; sta. 5 or 10.

North Berwick, Gullane, Gosford, Fala, Straiton, Balerno, Kirkliston, Abercorn, Linlithgow.

253 **arvense** L. *Field. Mouse-ear Chickweed.* Dry fields, &c. 6-10 in. Per. 4-8, hairy; st. prostr. later ascend.; ls. lin.-lanc.; bracts. lanc. with membr. edge; fls. many, sep. acute with membr. edge; *pet. twice as long as sep.*

North Berwick, Gullane, Port Seton, Crichtoun, King's Park, Musselburgh.

69 STELLARIA L. Slend. smooth plant; fl. white in forked cymes, sep. 5, pet. 5, *deeply cleft.*, sta. 10 (rarely 5), styles 3; fr. caps. open. in 6 valves.

257 **nemorum** L. *Wood Stitchwort.* Damp woods. 1-2 ft. Per. 5-7, plant pale green, st. erect; ls. ovate, cord. ptd. thin; fl. white, sep. lanc. with narr. membr. edge; *pet. deeply cut*, segm. narr., *twice as long as sep.*; caps. open to near base.

Dunglass, Gifford, Gosford, Musselburgh, Arniston, Roslin, Abercorn, Philipstoun, Carribber.

258 **media** Vill. "*Common Chickweed.*" Ubiq. 3-18 in. An. 2-10, very variable, st. decumb. with alter. line of hairs; ls. ovate, short, ptd.; fl. small, sep. with narr. membr. edge; *pet. not so long as sep.*, cleft or absent, sta. 3, 5 or 10; fr.-st. reflex, caps. obl.

Everywhere.

261 **Holostea** L. *Greater Stitchwort.* Hedges, &c. 1-2 ft. Per. 4-6, st. erect, ang. rough-edged, *brittle ;* ls. lanc. taper. to fine pt., rough-edged, sess. ; bracts leaflike ; fls. few, large ; sep. with membr. edge ; pet. twice as long as sep. ; caps. globose.

North Berwick, Aberlady, Longniddry, Inveresk, Roslin, Ratho, Kirkliston, Hopetoun, Linlithgow.

262 **glauca,** With. = **palustris** Retz. *Glaucous Marsh Stitchwort.* Marshes, &c. 1-2 ft. Per. 5-8, st. erect, ang., smooth ; ls. lin.-lanc., glauc., sess. ; bracts membr. smooth-edged ; fl. sol. axill., sep. 3-nerved with membr. edge ; *pet. longer than sep.*, segm. lin. ; caps. obl.-ov.

Duddingston, Brunstane Castle, Glencorse, Dalmahoy, Ratho, Kirknewton, Philipstoun, Linlithgow.

263 **graminea** L. *Heath Stitchwort.* Heathy pl. 1-2 ft. Per. 5-8, st. spread., ang., smooth ; ls. lin.-lanc. ptd. smooth, sess. ; bracts small, membr. fringed ; fl. small, sep. 3-nerved ; *pet.* narr. deeply cleft *equal to sep. ;* caps. obl.

Fala, Ormiston, Roslin, Ratho, Dalmeny, Carlowrie, Manuel.

264 **uliginosa** Murr. *Bog Stitchwort.* 3-18 in. Per. 5-7, plant straggling. st. ang. smooth ; ls. obl.-lanc., narr. at base, short, *with hard point*, sess. ; fl. small ; sep. lanc. ; *pet. not so long as sep.*, caps. ovate.

Dirleton, Aberlady, Longniddry, Duddingston, Roslin, Dalmahoy, Dalmeny, Philipstoun, Linlithgow.

70 ARENARIA L. Small, tufted or prostrate plant ; fl. white in forked cymes, sep. 5, pet. 5, *entire*, sta. 10 (rarely 5), styles 3 ; fr. capsule open. in 6 valves (or 3).

265 **verna** L. = **Alsine verna.** Wahlb. = **Minuartia verna.** *Spring Sandwort.* Hilly pl. 1-4 in. Per. 6-9, st. tufted ; ls. lin. awl-shaped, 3-veined ; sep. ov.-lanc. with membr. edge, 3-nerved. pet. obov. *longer than sep. ;* fr. caps. 3-valved.

Arthur's Seat, Blackford Hill, Craiglockhart Hill.

269 **trinervia** L. *Three-nerved Sandwort.* Woods, &c. 6-12 in. An. 5-6, straggling ; st. hairy ; ls. ov.-acute, 3-nerved, thin, light green ; fl. sol. axill. long-stalked ; sep. long, very ptd. 3-veined ; pet. obov., *shorter than sep. ;* capsule 6-valved, seeds few, glossy.

North Berwick, Saltoun, Longniddry, Dryden, Auchindinny, Ratho, South Queensferry, Hopetoun, Carribber.

270 **serpyllifolia** L. *Thyme-leaved Sandwort.* Dry pl. 2-12 in. An. 5-9, slend. gray-green plant, downy with recurved hairs ; st. much branched ; ls. very small, ovate, acute, 3-5 veined, roughish, sess. ; fl. small ; sep. ovate, lanc. acute, 3-veined ; pet. ovate, *not so long as sep.* ; fr. caps. ovoid, 6-valved, brittle.

North Berwick, Arthur's Seat, Salisbury Crags (var. patula), Cramond, Ratho, Blackness, Kirkliston.

271 **leptoclados** Guss. *Sandwort.* Dry pl. 2-12 in. An. 5-8, st. slend., much branched ; ls. very small, narr. acute, sess., fl. small ; sep. lanc., acute, 3-veined, hairy on veins ; pet. *not so long as sep.* ; fr. caps. obl.

Gullane, Luffness, Dirleton, Musselburgh.

275 **peploides** L. = **Honckenya peploides** Ehrh. *Sea Purslane.* Sea-coast. 4-18 in. Per 5-9, plant succulent ; st. prostr. ; ls. ovate, acute, fleshy, glossy, dk.-gr. 1-veined, sess. ; fl. often diœcious, small, sol. sess. ; sep. obov., thickish, 1-veined ; *pet. not longer than sep.* ; fr. caps. large, glob., fleshy, 3-valved, seeds 1-2 large.

North Berwick, Gullane, Aberlady, Longniddry, Port Seton, Cramond, Dalmeny, South Queensferry, Abercorn.

71 SAGINA L. Small matted plant ; ls. awl-shaped, united at base ; fl. small, white, pet. usually shorter than sep. or absent, sep. 4-5, pet. 4-5 or 0, entire, sta. 4-10, styles 4-5, capsule 4-5 valved.

(1) *Sep.* 4, *sta.* 4, *styles* 4, *caps.-valves* 4, *pet. small or* 0.

277 **maritima** Don. = **stricta,** Fr. *Sea Pearlwort.* Seashore. 1-6 in. An. 5-9, smooth, fleshy ; st. slend. with long internodes, reddish, brittle ; central st. long, forked ; ls. lin. fleshy, blunt ; sep. broad, blunt, incurved, as long as capsule.

North Berwick, Gullane, Luffness, Cramond Island, Blackness.

278 **apetala** Ard. *Annual Pearlwort.* Walls, etc. 1-10 in. An. 5-9, slightly downy, st. erect, central st. lengthening,

flowering; ls. lin. awned at tip.; sep. blunt, spread. from caps. when ripe, like a cross; pet. very minute or 0.

Morrison's Haven, Musselburgh, Borthwick, Ratho, Avonside, Gateside, Linlithgow.

280 **ciliata** Fr. *Fringed Pearlwort.* Dry pl. 1-6 in. An. 5-7, downy; st. long spread., central st. flowering; ls. lin., awned at tip, fringed with fine hairs; outer sep. ptd., almost equal to caps., adpress. with tips spread; pet. minute; caps. ov., tapering above.

East Linton.

282 **procumbens** L. *Procumbent or Common Pearlwort.* Wa. pl. Per. 5-9, prostr., smooth, spread. from central rosette, central st. never lengthening nor flowering; ls. lin. awned at tip, usually in clusters, pet. blunt or 0; sep. blunt, shorter than caps. spread in fr., ped. deflex. at flowering, later erect.

North Berwick, Gullane, Longniddry, Glencorse, Craigmillar, Ratho, Dalmeny, Dundas Castle, Linlithgow.

(2) *Sep.* 5, *pet.* 5, *styles* 5, *caps.-valves* 5, *sta.* 10 (=*Spergula Sm.*).

287 **subulata** Presl. *Heath or Awl-shaped Pearlwort.* Heathy pl. 1-2 in. Per. 6-8, gland., hairy, tufted; ls. lin. awned at tip, fringed; ped. long, curved at flowering, later erect; pet. nearly equal to sep., both gland.; fr. caps. ov. tapering.

Traprain, East Linton, Balerno, Dolphinton, Dalmahoy, Dalmeny, Kipps.

288 **nodosa** Fenzl. *Knotted Pearlwort or Spurrey.* Wet sandy pl. 2-6 in. Per. 7-9, largest-fld. species, smooth or gland.-hairy, st. procumb., leafy; central st. short, not flowering; ls. awl-shaped, smooth, clusters of small ls. in axil; ped. always erect; fl. 1-2 together, ¼ in. across; sep. blunt.

North Berwick, Gullane (var. moniliformis Lange.), Cockenzie, Musselburgh, King's Park, Pentlands, South Queensferry, Carriden, Linlithgow.

72 SPERGULA L. St. erect, stip. minute, membr.; ls. narr. lin. 6 or 8 together in 2 oppos. clusters, spread like whorl, lin. fleshy; fl. small, white, in forked cymes, sep. 5, pet. 5, ent., sta. 10 or fewer, styles 5, caps.-valves 5.

289 **vulgaris** Bœnn=**arvensis** L. *Corn Spurrey.* Cult. gr., wa. pl. 4-15 in. An. 6-8, ls. long., slend., lin., fleshy, furrowed below, sta. 10 or 5 on same plant; fr., st. deflexed, seeds black, papillose, with or without wing.

Leith, Dolphinton.

290 **sativa** Bœnn. *Corn Spurrey.* Cult. gr. 4-15 in. An. 6-8, like *S. vulgaris* but with seeds narr. winged, not papillose.

Dunbar, North Berwick, Gullane, Swanston, Balerno, Ratho, Dalmeny, Drumshoreland, Midhope.

73 SPERGULARIA Presl.=**LEPIGONUM** Fr.=**BUDA** Adans. =**TISSA**=**ALSINE.** St. procumb., stip. membr.; ls. oppos. lin., with clusters of smaller ls. in axils; fl. pink in forked cymes, sep. 5, pet. 5, ent. sta. 10 or fewer, styles usually 3. Capsule 3-valved; seeds usually thick-edged or winged.

291 **rubra** Pers. *Red Field Sandwort Spurrey.* Dry sandy pl. 3-8 in. An. 6-8, st. nearly round; stip. united, lanc., toothed, smooth, whitish; ls. in rosette, not fleshy, narr.-lin. flat, ptd.; fl. pink, pet. as long as sep.; fr. caps. small, seeds small, thick-edged, not winged.

Aberlady, Hunter's Bog, Blackford Hill, Braids.

293 **salina** Presl. *Sea Sandwort Spurrey.* Sea coast. 4-12 in. An. 6-9, st. compressed; stip., triang., ovate, ent.; ls. flattish, fleshy; bracts leaflike; fl. pink, with white base; caps. slightly longer than cal.; seeds roundish, smooth, with thick edge or membr. wing.

Thorntonloch, Cockburnspath.

(*b*) var. **neglecta** Syme, with membr. bracts and papillose seeds.

Levenhall.

294 **marginata** Kitt. *Sea Sandwort Spurrey.* Marshy pl. 4-12 in. Bi. 6-9, st. compressed, stip. broad-ovate usually ent.; ls. lin., fleshy, blunt, smooth; pet. pale pink, shorter than sep., sta. 10 or fewer; caps. large, much longer than cal.; seeds reddish, with thick edge and broad membr. wing.

Aberlady, Longniddry, Newbridge, Blackness.

13. PORTULACEAE.

Purslane Family—Small, smooth, succulent herbs; ls. oppos. simp. entire; fl. reg. small, sep. 2, pet. 5, sta. 3-5, ovary 1-celled, placent. basal. Stigma usually 3-cleft; fr. 3-valved capsule.

Key to Genera.

(1) *Pet. 5, free, sta. 5, rad. ls. stalked* . . . *Claytonia* 75
(2) *Pet. 5, united at base, sta. 3, fl. minute* . . *Montia* 76

75 *CLAYTONIA* L. Rad. ls. long stalked; fl. in term. cymes, white or pink., sep. 2 persist., pet. 5 free, sta. 5, stig. 3; fr. caps. 3-valved, 3-seeded.

297 **alsinioides* Sims = *sibirica* L. *Claytonia.* Damp pl. 6-15 in. An. 5-8, rad. ls., ovate-acum., upper ls. round sess., oppos.; fl. white, or pink, usually sol.; pet. 2-fid.

Roslin, Prestonfield, Currie, Balerno, Newbridge, Granton, Winchburgh, Linlithgow.

298 **perfoliata* Donn. *Perfoliate Claytonia.* Roadsides. 4-12 in. An. 4-6, rad. ls. fleshy, broad-ovate; st.-ls. below fl. joined together; fl. small in rac., pet. nearly ent.

Kingston, North Berwick, Warriston, Leith, Carriden.

76 MONTIA L.

299 **fontana** L. *Water-Blinks.* Damp. pl. 1-3 in. An. 4-8, plant small, smooth, rather fleshy, pale gr.; ls. oppos. obov. ent.; fl. minute, white, sep. 2 persist.; pet. 5, united at base (3 smaller), corolla split in front, sta. 3, stig. 3; fr. capsule, 3-valved, 3-seeded (seeds cov. with tubercles).

Blinkie Burn, Lammerlaw, Fala, Penicuik, Glencorse, Kaimes Hill.

16. HYPERICACEAE.

St John's-wort Family—Herbs or shrubs with oppos. simple ls. often dotted with translucent glands; fl. reg., yell., sep. 5, pet. 5, sta. many in 3-5 bundles, ovary 3-5 celled, styles 3-5 placent. axile.; fr. many-seeded capsule or berry.

79 HYPERICUM L.

303 **Androsaemum** L. *Tutsan, Park Leaves.* Plantations. 1-3 ft. Per. 6-8, st. erect, compressed, shrubby; ls. large, ovate, blunt, sess., with very minute pellucid dots; fl. yell. in term. few-fld. cyme; sep. broad, unequal; pet. ovate, blunt, scarcely longer than sep.; sta. many in 5 bundles; styles 3, recurved; fr. pulpy, glossy, black, berrylike.

Colinton.

306 **calycinum* L. *Large-flowered St John's-wort, Rose-of-Sharon.* Plantations, &c. 6-18 in. Per. 6-9, creep. shrub, st. square; ls. obl. (2-4 in.), very blunt, smooth, sess.; fl. sol. very large (3 in. across), bright yell., sep. unequal, obov. blunt, sta. very many, united at base into 5 bundles, styles 5, straight; fr. capsule, conical.

Haddington, Longniddry, Seton Mains, Arniston, Roslin, Ratho, Kirkliston, Philipstoun, Linlithgow.

307 **perforatum** L. *Perforate St John's-wort.* Dry heathy pl. 1-2 ft. Per. 7-9, st. erect, 2-edged, smooth; ls. ov.-obl. with pellucid dots, only chief veins clear, a few black dots under margin; pet. obl., twice as long as sep.; sep. erect, lanc. ptd. ent., with black dots, anthers with black dots; styles 3, as long as capsule; sta. in 3 bundles.

Haddington, Longniddry, Seton Mains, Arniston, Roslin, Ratho, Kirkliston, Philipstoun, Linlithgow.

308 **dubium** Leers = **maculatum** Cr. = **quadrangulum** L. & Fries. *Marsh St John's-wort.* Wet. pl. 1-2 ft. Per. 7-8, st. erect. 4-ang.; ls. ellip.-ov. blunt, few or no dots, but netted with pellucid veins; fl. small, pale yell.; sep. obl.-lanc. reflexed, with few black dots outside, style short.

Glencorse, Almondside, Kirkliston, Linlithgow, Carribber.

310 **tetrapterum** Fr. = **acutum** Moench = **quadrangulum** Sm. = **quadratum** Stokes. *St Peter's-wort, Square-stalked St John's-wort.* Wet pl. 1-2 ft. Per. 7-8, st. erect., 4-winged, ls. ov., with pellucid dots and veins; fls. pale yell., many; sep. erect, lanc.-acum., ent. gland.; pet. lanc., style short.

Dunbar, East Linton, North Berwick, Gullane, Port Seton, Prestonhall, Roslin, Corstorphine, Canal banks, Kirkliston, Hopetoun.

312 **humifusum** L. *Trailing St John's-wort.* Heathy pl. 4-10 in. Per. 7-8, prostr., smooth; st. slend., 2-edged; ls.

smaller, obl. blunt, with black dots under rolled-back edges; fls. few, small, pale yell. in leafy cymes, sep. unequal, 3 obl. 2 lanc. ent. with few black dots; pet. not longer than sep., with few black dots; sta. 15-20, style very short.

Dunglass, Dunbar, Roslin, Hillend, Dalmahoy, Binns, Kirkliston, Linlithgow.

314 **pulchrum** L. *Upright St John's-wort.* Heaths. 6-24 in. Per. 7-8, st. erect, nearly simp., stiff, round, smooth; ls. cord. clasp; smooth, with pellucid dots (no black ones); fl. in oppos. axill. and term. cymes, fl.-buds tipped red, pet. edged with glands, sep. broad-oval, blunt, edged with sess. glands; anthers red.

Black Castle Hill, Gifford, Aberlady, Arniston, Roslin, Malleny, Kirkliston, Linlithgow.

315 **hirsutum** L. *Hairy St John's-wort.* Woods. 1-3 ft. Per. 7-8, st. erect, round, hairy; ls. ov.-obl., shortly stalked, downy, with pellucid dots; fl. pale yell.; sep. narr. ptd., fringed with slightly stalked glands; pet. narr.-obl. tipped with stalked glands.

North Berwick, Roslin, Duddingston, Colinton.

17. MALVACEAE.

Mallow Family—Herbs and shrubs with alter. palmately veined, lobed, stipulate ls.; fl. large, reg. with double calyx; sep. 5, epicalyx 3-9 bracts, pet. 5, sta. many, united in tube, carpels many, each 1-ovuled, 1-styled; fr. regma splitting into many 1-seeded nutlets (cocci.).

Key to Genera.

(1) *Shrub; epicalyx 3-lobed*	*Lavatera*	81
(2) *Herb; epicalyx of 3 distinct bracts* . . .	*Malva*	82

81 LAVATERA L.

320 **arborea** L. *Tree Mallow.* Sea-cliffs. 3-8 ft. Per. 7-9, st. stout, woody; ls. long-stalked, roundish, palm. 7-lobed, plaited, velvety; fl. large, purp.-red, with darker veins, clustered on short peds. in long term. rac., epicalyx of 3 united bracts, sep. 5, pet. 5, sta. many, styles many; fr. regma splitting into many nutlets.

Bass Rock.

82 MALVA L. Hairy or smooth; ls. alter. palm.-lobed and veined; fl. large with double cal. the outer of 3 distinct bracts, sta. many, united in tube, styles many; fr. splitting into several 1-seeded nutlets.

322 **moschata** L. *Musk Mallow.* Grav. pl. 2-3 ft. Per. 7-8, light gr., hairy; st. erect, slightly branched; ls. kidney-shaped, 5-7 lobed, lr.-ls. cren.; st.-ls. with deeply 2-pinn.-fid. lobes; stip. lanc. acute, fl. large, rose or white, crowded on sol. axill. ped.; outer sep. lin.-lanc.; fr. erect, hairy regma with rounded carpels.

North Berwick, Yester, Prestonpans, Roslin, Auchindinny. Kirkliston, Bo'ness.

323 **sylvestris** L. *Common Mallow.* Wa. pl. 2-3 ft. Per. 6-9, downy; st. ascend. cov. with spread. hairs; ls. kidney-shaped with 5-7 cren. lobes; stip. lanc.; fl. large red-purp., with crim. veins, in axill. clusters; cal. hairy, outer sep. lanc.; fr. erect, regma of 10 ang.-edged carpels, smooth.

Dunbar, North Berwick, Gullane, Fala, Levenhall, Craigmillar, Slateford (var. lasiocarpa Dr), Abercorn, Linlithgow, Avonside.

325 **rotundifolia** L. *Dwarf Mallow.* Wa. pl. 6-18 in. Per. 6-9, prostr.; st. often woody at base; ls. small, roundish, cord. 5-7, shallow cren. lobes; stip. ov.-acute; fl. small, pale bluish-red, clustered in leaf-axil; pet. small, outer sep. lin.-lanc. less than inner hairy ones; fr.-st. reflexed; fr. regma with carpels rounded on back, downy.

North Berwick, Gullane, Prestonpans, Borthwick, Eskmouth, Dalkeith, Dalmeny, Kirkliston, Linlithgow.

18. TILIACEAE.

"Lime-tree" Family—Trees with alter. stip. ls.; fl. reg. in cymes with long bract attached to peduncle; sep. 5, pet. 5, sta. many; ovary 5-celled, 2-ovuled; style 1; fr. 1-celled, 1-2 seeded.

83 TILIA L. Tree, with alter. stalked, obliquely cord., pointed, toothed ls.; fl. small, sweet-scented, in small cymes, with long, lanc. bract; style 1 with 5-toothed stig., ovary 5-celled,—in fr. 1-celled with 1-2 seeds. (Tilia = Linden or Line, now "Lime.")

329 **platyphyllos** Scop. = **grandifolia** Ehrh. *Broad-leaved Lime.* Plantations, woods. Per. 6-7, young twigs hairy; ls. large, thin, bright gr., downy beneath; peds. usually 3-fld.; fr. woody, downy, 5-ang.

Yester, Longniddry, Liberton, Lasswade, Penicuik.

330 **vulgaris* Hayne = *intermedia* D.C = *europaea* L. *Common Lime.* Plantations. Per. 6-7, young twigs smooth; ls. thin, light gr., long, smooth beneath, with woolly tufts on vein-axils; ped. many-fld.; fr. woody, downy, not ribbed.

East Linton, Gifford, Longniddry, Arniston, Dalkeith, Roslin, Abercorn, Philipstoun, Linlithgow.

331 **cordata** Mill. = **parvifolia** Ehrh = **ulmifolia** Scop. *Small-leaved Lime.* Woods. Per. 7-8, young twigs smooth; ls. small, thick, leathery, glauc. beneath, with woolly tufts on vein-axils; fr. ang., thin, downy, faintly ribbed.

Yester, Tynninghame, Cramond, Carriden.

19. LINACEAE.

Flax Family—Herbs with slend. st.; ls. narr. simp. ent.; fl. reg., sep. 4-5, pet. 4-5, sta. 8-10, ovary 4-5 celled, placent. axile, styles 4-5; fr. capsule.

85 LINUM L. Ls. alter. or oppos.; fl. in cymes, sep. 5, pet. 5, sta. 5 with 5 undeveloped ones (staminodes), styles 5, ovary 5-celled, 10-ovuled; fr. capsule.

333 **catharticum** L. *Purging Flax, Mill-Mountain.* Past. 2-10 in. An. 6-8, st. much branched; ls. obov. oppos., upper lanc.; fl. white, small, on long, slend. ped.; sep. ellip. acute, 1-nerved, toothed.

North Berwick, Gullane, Longniddry, Fala, Crichton, Slateford, Kirkliston, Carribber.

336 *usitatissimum* L. *Flax, Linseed.* Wa. pl. 1-2 ft. An. 7-9, st. sol., smooth; ls. alt. lin.-lanc., ptd., ent.; fl. blue in loose corymbose cyme; sep. ov. ptd., 3-nerved, fringed; capsule globose.

Musselburgh, Leith, Roslin, Newbridge, South Queensferry.

20. GERANIACEAE.

Crane's-bill Family—Herbs with ls. usually simple, and stip.; fl. usually reg., sep. 3-5, pet. 3-5, sta. 5-10, ovary 5-celled, styles 1-5; fr. regma beaked or not, or explosive capsule.

Key to Genera.

I. *Fl. reg.:*
- A. *Fr. regma, splitting into 5 cocci:*
  - (1) *Sta. 10; awns curved, smooth; ls. palm.* — *Geranium* 86
  - (2) *Sta. 5; awns spiral, bearded; ls. pinnfid.* — *Erodium* 87
- B. *Fr. capsule:*
  - (1) *Sta. 10; styles 5; ls. 3-nate.* . . . *Oxalis* 88

II. *Fl. irreg.—spurred:*
- (1) *Sep. 3, coloured, pet. 3, sta. 5; fr. explos. caps. ls. ovate* . . . . . *Impatiens* 89

86 GERANIUM L. St. often swollen at joints; ls. oppos. stip. palmately-lobed or divided; fl. axill., purp.-pink, 1-2 together, sep. 5, pet. 5, sta. 10 (5 shorter), with glands at base; ovary 5-lobed, attached to central axis (beak, or carpophore), styles 5. When ripe, each 1-seeded carpel curls upwards, tearing its long straight "awn" from the beak.

337 **sanguineum** L. *Blood-red Crane's-bill.* Dry rocky pl. 1-2 ft. Per. 7-8, st. ascend. or erect, hairy; ls. roundish, 5-7 fid. with 3-fid. lobes; st.-ls. 3-lobed; fl. large, usually sol., crim., long-stalked, sep. finely ptd., hairy, pet. obcord. long; carpels smooth with bristle-tips, seeds wrinkled, dotted.

Tynninghame, Gullane, Aberlady, Longniddry, King's Park, Linlithgow.

339 *nodosum* L. *Knotted Crane's-bill.* Plantations, &c. 1-2 ft. Per. 7-8, plant smooth; st. erect, lr.-ls. 5-fid. with very ptd. lobes, st.-ls. 3-fid. with ov.-acum. toothed lobes; fl. pale rose-purp., sep. hairy, pet. obcord. long; fr. downy.

Prestonhall, Colinton, Ecclesmachan, Carriden, Carribber.

340 **phaeum* L. *Dusky Crane's-bill.* Plantations, &c. 1-3 ft. Per. 6-8, st. erect; ls. roundish, 3-7 lobed, cut, toothed; fl. dingy purp.-brown, pet. ent. wavy, roundish-wedge-shaped; carpels hairy below, wrinkled above, seeds dotted, striate.

East Linton, Dirleton, Inveresk, Prestonhall, Craigmillar, Slateford, Colinton, Ratho, South Queensferry, Linlithgow, Kinneil.

341 **sylvaticum** L. *Wood Crane's-bill.* Copses. 1-2 ft. Per. 6-8, st. erect, slightly hairy above; ls. 7-fid., cut, toothed; st.-ls. sess.; fl. purp.-blue (rarely pink), pet. faintly notched, obov., claws bearded; fr.-st. erect, carpels gland.-hairy; seeds dotted.

Shippath Dean, Yester, Arniston, Roslin, Colinton, Almondside, Kirkliston, Woodcockdale, Philipstoun, Carribber.

342 **pratense** L. *Meadow Crane's-bill.* Damp pl. 1-3 ft. Per. 6-7, st. erect, gland.-hairy above, hairs deflexed; ls. roundish, 5-7 fid., lobes deeply divided, deeply toothed; fl. large, purp.-blue, with dark veins, long-stalked, pet. slightly notched, obov., claws fringed; fr.-st. reflexed, carpels gland.-hairy; seeds small, netted.

Gifford, Aberlady, Longniddry, Lymphoy, Gogar, Ratho, Carlowrie, Hopetoun, Philipstoun.

343 **pyrenaicum** Burm. fil. *Mountain Crane's-bill.* Roadsides. 1-2 ft. Per. 6-8, st. straggling, downy, hairy; ls. kidney-shaped, 5-7 fid., lobes blunt, 3-fid., toothed; fl. purp.-violet veined; sep. hairy, pet. deeply notched, obcord., claws fringed; fr.-st. deflexed, carpels smooth.

Hailes Castle, Tynninghame, Arthur's Seat, Craigmillar, Slateford, Dalmeny, Linlithgow.

344 **molle** L. *Dove's-foot Crane's-bill.* Cult. gr., &c. 6-12 in. An. 4-9, prostr. very downy with long, soft hairs; st. spread.; ls. round, kidney-shaped, 7-9-lobed, lobes 3-fid. at tip, upper-ls. few, small; fl. small, lilac or rose; sep. blunt; pet. 2-fid., claws fringed, styles red; carpels smooth, wrinkled.

North Berwick, Gullane, Longniddry, Eskmouth, Comiston, Kirknewton, Kirkliston, Broxburn, Linlithgow.

345 **pusillum** L. *Small-flowered Crane's-bill.* Roadsides. 6-18 in. An. 6-9, small; st. spread., downy; ls. small, kidney-shaped, 5-7 fid., lobes 3-fid.; fl. small, pink, pet. notched, claws fringed; fr.-st. deflexed carpels, keeled, hairs adpressed, seeds smooth.

Tynninghame, Gullane, Musselburgh, King's Park, Linlithgow.

347 **dissectum** L. *Jagged-leaved Crane's-bill.* Cult. gr., &c. 6-18 in. An. 6-8, st. spread., hairy; ls. roundish, with 5-7 deeply cut segments, each 3-fid., lobes lin.; fl. shortly stalked, red-purp., pet. 2-fid., as long as sep., carpels with erect hairs, seeds netted.

Dunbar, North Berwick, Prestonpans, King's Park, Auchindinny, Ratho, Kirkliston, Ecclesmachan, Kinneil.

348 **columbinum** L. *Long-stalked Crane's-bill.* Grav. past. 1-2 ft. An. 6-8, st. long, spread, hairs adpressed; ls. 5-7, deeply cut, segm. lin., long-stalked; fl. rose, long-stalked; pet. almost ent. obov., sep. long, ptd.; carpels smooth, seeds dotted.

Dunbar, Leith, Roslin, Slateford.

349 **lucidum** L. *Shining Crane's-bill.* Rocky pl. 6-12 in. An. 5-8, st. spread., ascend.; ls. smooth, *glossy*, tinged red, kidney-shaped, with 5 blunt cren. lobes; fl. small, rose; pet. ent., obov., sep. wrinkled, long-ptd., erect, ang.; carpels, keeled, netted, gland.-hairy at tip, seeds smooth.

North Berwick, Prestonhall, Craigmillar, Craiglockhart, South Queensferry, Blackness, Carribber.

350 **Robertianum** L. *Herb-Robert, Stinking Crane's-bill.* Hedges, &c. 6-24 in. An. 5-8, st. spread.-erect; ls. 3-5-nate, lfts. stalked, pinn-fid.; fl. pink, veined, pet. almost ent. obov., long claws, sep. hairy, long-ptd., viscid with gland.-hairs; carpels wrinkled, downy, seeds smooth—whole plant reddens in Autumn.

Dirleton, Gullane, Longniddry, Arthur's Seat, Roslin, Comiston, Kirkliston, Hopetoun, Linlithgow.

87 ERODIUM L.'Herit. St. swollen at joints; ls. pinn. stip.; fls. 1-12, on axill. ped., sep. 5, pet. 5, sta. 5, with glands at base, staminodes 5 alter.; carpels 1-seeded with 2 pits at top and spirally-coiled, bearded awns.

352 **cicutarium** L.'Herit. *Hemlock-leaved Stork's-bill.* Sandy gr. 3-18 in. Bi. 5-8, plant very variable, prostr.

hairy, sometimes viscid; ls. mostly rad., *pinn.*, *segm. deeply pinn.-fid.*, toothed, long-stalked; fls. 2-12, on axill. ped., pink; sometimes spot at base of 2 petals.

Dunbar, North Berwick. Gullane, Longniddry, Seton Mains, Arthur's Seat, Blackford Hill, Dalmahoy.

88 **OXALIS** L. Ls. 3-nate ("trefoil"), sensitive; fl. reg. axill.; sep. 5, pet. 5, often united below, sta. 10, outer shorter, styles 5, ovary ang., 5-celled, seed-coat elastic.

358 **Acetosella** L. *Wood-Sorrel.* Woods, &c. 3-6 in. Per. 5-8, rhizome thin, creep.; ls. rad. long-stalked, light gr., sensitive, 3-nate; lfts. obcord., hairy; fl. white with purp. veins, sometimes tinged purp., sol. on rad. peduncle, with 2 scale-like bracts halfway up; fr. ovoid 5-celled capsule, seeds (10) glossy, black, ribbed.

Cockburnspath, Yester, Gosford, Heriot, Roslin, Corstorphine, Dalmeny, Kirkliston, Philipstoun.

(*b*) **subpurpurascens** D.C. fl. rose-purp. *Glencorse.*

89 **IMPATIENS.** Ls. alter. simple; stip. 0; fl. very irreg., sep. 3, coloured, pet. 3, lr.-sep. spurred, side-pet. unequally 2-lobed; sta. 5, with very short thick filam.; ovary 5-celled, many-ovuled; fr. 5-valved, fleshy, explosive capsule.

363 **parviflora* D.C. *Small Yellow Balsam.* Wa. pl. 1-2 ft. An. 7-9, ls. ellip., narr. at both ends, toothed; ped. erect, 3-12 fld.; fl. small, pale yell.; spur short, straight.

East Linton.

364 **glandulifera* Royle. *Indian Balsam.* Wa. pl. 3-5 ft. An. 7-10, st. stout; fl. large, red-purp.

Craigmillar, Loanhead, Water of Leith, Slateford.

21. AQUIFOLIACEAE.

Holly Family—Small, evergreen tree, with alter. simp. leathery ls.; fl. in axill. cymes, sep. 4-5 imbric., pet. 4-5 imbric., sta. 4-5, stig. 4-5 sess.; ovary 4-celled; fr. drupe with 4 1-seeded stones.

90 **ILEX** L.

365 **Aquifolium** L. *Holly.* Woods, hedges, &c. 10-30 ft. Per. 5-8, ls. shortly stalked, ovate, with waved and usually very spiny edges; on upper branches ls. often ent., tipped with 1 spine, leathery, glossy; fl. in dense axill. clusters, gr.-white, sep. usually united, persist., pet. usually united, in wheel-shaped (rotate) cor.; fr. scarlet drupe with 4 1-seeded stones.

Cockburnspath, Gifford, Gosforth, Arniston, Dalkeith, Roslin, Dalmeny, Abercorn, Linlithgow.

22. CELASTRACEAE.

Spindle-tree Family—Shrubs or trees with oppos. ls.; fl. reg. in small axill. cymes, sep. 4-5, pet. 4-5, sta. 4-5, ovary 3-5 celled; fr., capsule with 3-5 seeds in aril—usually fleshy.

91 **EUONYMUS** L.

366 **europaeus** L. *Spindle-tree.* Hedges, &c. 3-5 ft. Per. 5-6, branches ang., smooth, green; ls. simp., ovate-lanc., minutely toothed, smooth; fl. gr.-white in small, axill. cymes, cal. flat, 4-lobed, pet. 4, obl., sta. 4-5, style 1, ovary bluntly 3-5 angled, 3-5 celled; fr. deeply lobed, rose-coloured capsule, when ripe, splitting to show seeds in orange-scarlet fleshy aril.

Dunglass, Aberlady, Gosford, Arniston, Polton, Dryden, Duddingston, Carlowrie, Hopetoun, Abercorn.

24. ACERACEAE.

Maple Family—Deciduous trees with oppos. ls.; fl. reg., small, green; sep. 4-9, pet. 4-9, sta. usually 8, ovary 2-lobed, 2-celled; fr. 2-winged samara.

93 **ACER** L. Ls. simp. oppos. palmately veined and lobed, stip. 0; fl. greenish, in rac. sep. 5, pet. 5 or 0, sta. 8; fr. 2-winged samara separ. when ripe into 2 carpels, each produced to a wing at top.

369 **Pseudo-Platanus* L. *Sycamore.* Hedges, &c. 40-60 ft. Per. 5-6, large tree, bark gray, scaly; ls. 5-lobed, lobes ptd., unequally toothed; fl. in long *hanging* rac.; fr.-wings diverg. *almost at right angles.*

Dunbar, Yester, Haddington, Arniston, Musselburgh, Roslin, Kirkliston, Abercorn, Linlithgow.

370 **campestre.** *Field Maple.* Hedges, &c. 10-30 ft. Per. 5-6, small, round-headed tree, with corky, fissured bark; ls. dk.-gr., 5-lobed, lobes blunt, ent.; fls. few in *erect* rac.; sep. and pet. lin., hairy; ovary downy; fr.-wings *almost in one line.*

Aberlady, Ormiston, Prestonhall, Smeaton, Gorebridge, South Queensferry, Linlithgow, Manuel, Avonbridge.

25. LEGUMINOSAE.

Pea Family—Herbs or shrubs with alter. stip. ls. usually compound; fl. very irreg., sep. 5 united; pet. 5,—upper one called "standard," 2 side ones or "wings," 2 lower ones more or less united to form "keel"; sta. 10, either all united in a sheath round the ovary, or the upper 1 free, the other 9 united; ovary 1-celled; fr. a pod or "legume."

Key to Genera.

I. *Ls. 3-nate, sometimes reduced to spines:*

A. *Shrubs, lfts. ent.; sta. 10, all united:*

(1) *Cal. deeply toothed; pods longer than cal.; fl. in rac., lft. 1, spines few or 0* . *Genista* 95

(2) *Cal. coloured; pods scarcely longer than cal.; fl. axill.; lft. 1, whole plant densely spinous* . . . . . *Ulex* 96

(3) *Cal. minutely toothed; pod far longer than cal.; pet. broad; lfts. 3; branches gr., wiry, ang.* . . . . . *Cytisus* 97

B. *Herbs; lfts. toothed:*

(1) *Sta. 10, all united; cal. 5-cleft, segm. lin.* . . . . . *Ononis* 98

(2) *Sta. 10, in 2 bundles—1 free, 9 united:*

(a) *rac. short; pod curved, longer than cor., dehiscent* . . . . . *Trigonella* 99

(b) *rac. short; pod spiral* . . . . *Medicago* 100

(c) *rac. long, 1-sided; pod nearly straight, short, indehiscent* . . *Melliotus* 101

(d) *fl. in close head; pod short, indehiscent* . . . . . *Trifolium* 102

II. *Ls. pinnate with term. lft.—not tendrilled:*

A. *Lfts. ent.; pod 2-valved (without septum):*

(1) *Sta. 10, all united; cal. inflated, enclosing pod* . . . . . *Anthyllis* 103

(2) *Sta. 10, in 2 bundles (1 & 9), pod longer than cal.; fl. in umbel* . . *Lotus* 104

B. *Lfts. ent.; pod 2-valved with septum (partition):*

(1) *Sta. 10, in 2 bundles, keel of cor. blunt* . *Astragalus* 105

C. *Sta. 10, in 2 bundles; pod jointed:*

(1) *Fl. in axill. umbel; cor.-keel ptd.; pod long, 4-ang.* . . . . . *Coronilla* 107

(2) *Fl. minute, in umbel, with pinn. lf. below each; cor.-keel blunt; pod curved, joints many, oval* . . . . . *Ornithopus* 108

(3) *Fl. in oval spike; pod flat, straight, 1-jointed* . . . . . *Onobrychis* 110

III. *Lf. pinnate without term. lft., with tendril or point:*

A. *Sta. 10, in 2 bundles:*

(1) *Style thread-like; pet. narr.; lfts. many* . . . . . *Vicia* 111

(2) *Style flattened; pet. broad; lfts. few* . *Lathyrus* 112

95 **GENISTA** L. Low shrubby plant, sometimes spinous; ls. appar. simp. ent.; fl. in rac. with bracts, yell.; cal. slightly 2-lipped, 5-toothed, 2 upper teeth longer; sta. 10, all united in a sheath,—5 short with versatile anthers and 5 long with basifixed anthers alter.; fr. pod longer than calyx.

372 **anglica** L. *Petty whin, Nettle Greenweed.* Heaths. 1-2 ft. Per. 5-7, smooth, spinous; st. ascend., lr. branches with recurved spines instead of ls., upper ls. ov.-lanc.; fl. pale yell., often sol. axill.; pet. narr., keel longer than standard; fr. pod smooth, inflated.

Lammermoors, Tynehead, Bavelaw Moss, Pentlands.

374 **tinctoria** L. *Dyer's Greenweed.* Past. 1-2 ft. Per. 7-9, st. decumb. at base, woody, smooth; stip. minute; ls. lanc., hairy at edge, often glossy, sess.; fl. yell. in term. rac. with bracts; keel as long as standard; fr. pod smooth.

Pentlands, Drumshoreland.

96 **ULEX** L. Densely spinous, shrubby plant, ls. in seedling 3-nate, later reduced to spines, branches become thorns;

fl. bright yell. axill. ; cal. yell., deeply 2-lipped, upper with 2 teeth, 2 bracts at base, nearly as long as cor. ; pet. narr., sta. 10, all united, alternately short with versatile anthers, and long with basifixed ones ; fr. pod thick, few-seeded, hardly longer than calyx.

375 **europaeus** L. *Whin, Gorse, Furze.* Heaths. 2-6 ft. Per. 2-9, st. erect, hairy, spines strong, stiff, furrowed, rough ; fl. bright yell. cal. with loose, ovate bracts, yell., cov. with spread. brownish hairs ; pet., narr. wing-pet. longer than keel ; fr. pod black, with brown hairs.

Innerwick, Gifford, Port Seton, Braids, Pentlands, Dalmahoy, Dalmeny, Carribber.

97 CYTISUS L. = **SAROTHAMNUS** Koch.

378 **scoparius** Link. *Broom.* Heathy pl. 1-6 ft. Per. 5-6, shrub with long gr. wiry ang. branches ; stip. minute, ls. 3-nate, often reduced to 1 lft. ; fl. large, yell., 1-2 on short ped., axill. ; cal. 2-lipped, teeth minute ; pet. broad—standard broadly ovate, keel blunt, sta. 10, all united, style long, *spirally coiled ;* fr. pod long, flat, dk.-brown with hairy edge, seeds many.

Dunbar, Pressmennan, Aberlady, Braids, Pentlands, Ratho, Dalmeny, Niddry Castle, Carlowrie, Carribber.

98 ONONIS L. Low-spreading, hairy, viscid, sometimes spiny ; stip. leafy ; ls. 3-nate., gen.-toothed ; fl. sol. axill. pink ; cal. 5-cleft, segm. lin. ; standard large, keel beaked, sta. 10, all united, style thread-like ; fr. pod thick.

379 **repens** L. = **arvensis** I. K. *Restharrow, Wild Liquorice.* Sandy pl. 1-2 ft. Per. 6-9, plant clothed with soft, spread. hairs, clammy to touch ; st. procumb., rooting at base, hairy all round, usually without spines ; lft. broad-oblong ; fl. axill. sol. stalked, rose-pink with dark streaks, pet.-wings as long as keel, standard longer ; fr. pod. erect, ov., not so long as cal. ; seeds warty.

North Berwick, Gosford, Longniddry, Arthur's Seat, Cramond Island, Ratho.

(*b*) **horrida** Lange. Var. with spines.

Longniddry, Newcraighall, Arthur's Seat.

99 TRIGONELLA L. = **FALCATULA** Bab.

382 **ornithopodioides** D.C. = **purpurascens** Lam. *Bird'sfoot Fenugreek.* Wa., sandy pl. 2-8 in. An. 6-7, st. prostr.

matted ; stip. ov. long-ptd. ; ls. 3-nate, lft. obcord., toothed ; fl. small, pink-white in 1-3 fld. clusters ; cal.-teeth 5, slend. ; acute, nearly equal, smooth ; pet. small, persist., keel blunt ; fr. narr. compressed, curved, blunt, with cross furrows, longer than cal. ; seeds 6-8, smooth.

Dalkeith, Leith, Slateford.

100 MEDICAGO L. Ls. 3-nate, lft. usually toothed, stip. leafy ; fl. yell. or violet, small, in short axill. rac. ; cal.-teeth 5, nearly equal, sta. 10, in 2 bundles, keel blunt ; fr. pod usually spirally coiled, rarely sickle-shaped.

383 **sativa* L. *Lucerne, Purple Medick.* Cult. gr., &c. 1-2 ft. Per. 6-8, st. erect, hollow ; lft. obl. toothed above, notched, mucron., fl. usually purp.-violet, in close many-fld. rac. ; fr. pod of loose spiral, 2-3 turns, downy.

Dunbar, Musselburgh, Leith, Straiton, Boghall, Kirkliston, Granton.

386 **lupulina** L. *Black Medick, Nonsuch.* Past., &c. 6-24 in. An. 5-8, downy ; st. procumb. or ascend., spread, stip. broad-ov., slightly toothed ; lft. roundish, notched, *mucron.* ; fl. small, bright yell. in dense many-fld. oval spike ; fr. pod compressed, kidney-shaped, with spiral pt., smooth, black when ripe.

North Berwick, Fala, Leith, Craigmillar, Slateford, Ratho, Canal banks, Kirknewton, Kirkliston.

389 **arabica** Huds. = **maculata** Sibth. *Spotted Medick.* Past., Wa. pl. 6-24 in. An. 6-8, plant smooth, st. prostr. ; stip. toothed ; lft. obcord., often with purp. heart-shaped spot ; fl. yell., 1-4 together ; fr. pod netted and like a prickly ball, 3-4 spiral coils, edge having four ridges with central furrow between 2 rows of fine curved spines.

Musselburgh, Portobello, Leith, Liberton, Linlithgow.

101 MELILOTUS Hill. Plant tall ; ls. 3-nate, light gr. ; lft. narr. ovate, usually toothed ; fl. yell. or white, small, droop. in long, loose, 1-sided axill. rac. ; cal. 5-toothed ; keel blunt, free ; fr. pod nearly straight, short, thick, longer than cal., usually 1-seeded.

391 **altissima** Thuill. = **officinalis** Lam. Willd. *Common Yellow Melilot.* Roadsides, &c. 2-3 ft. Bi. 6-8, st. erect.

stip. very narr. ent.; ls. distant, long-stalked; lft. narr. ovate, toothed; fl. bright yell.; pet. all equal; fr. pod ovate, acute, irreg. netted, hairy.

Dunbar, Haddington, Gosford, Musselburgh, Slateford, Kirkliston.

392 **alba* Desr. = *vulgaris* Willd. = *leucantha* Koch. *White Melilot.* Wa. pl. 2-6 ft. Bi. 6-8, st. wiry; stip. awl-shaped, ent.; lft. narr. obov. toothed, blunt; fl. white, wings equal to keel, shorter than standard; fr. pod, ov. mucron. netted, smooth.

Portobello, Leith, Slateford.

393 **officinalis* Koch. G.G. = *arvensis* Wallr. *Field Melilot.* Wa. pl. 1-3 ft. Bi. 6-8, smaller plant, stip. awl-shaped, ent., lft. obcord. obl. toothed, upper lanc.; fl. pale yell. or white, wings equal to standard, longer than keel; fr. pod blunt, ribbed, smooth, olive-brown when ripe.

Drem, Seton Mains, Prestonpans, Levenhall, Inveresk, Portobello, Leith, Straiton, Slateford, Kirkliston.

394 **indica* All. = *parviflora* Desf. *Small Melilot.* Wa. pl. 6-12 in. An. 6-8, plant slend.; stip. awl-shaped, ent.; lft. obov. ent., toothed at end; fl. very small; pet. pale yell., cal. red-brown, cal.-teeth triang., wings equal to keel, shorter than standard; fr. pod glob.-ovoid, blunt, netted, smooth, olive-gr. when ripe.

Port Seton, Gosford, Prestonpans, Inveresk, Portobello, Comiston, Slateford, South Queensferry.

102 TRIFOLIUM L. Ls. 3-nate, stip.; lft. often toothed; fl. small, red, white or yell. in very close rac. or head., cal.-teeth 5 unequal, pet. narr., persist. round fr., keel blunt; sta. in 2 bundles; fr. pod nearly straight, oval, 1-4 seeded.

396 **pratense** L. *Clover, Common Trefoil.* Past., &c. 3-18 in. Per. 5-9, st. nearly erect, hairy; stip. large, ov. membr., veined; lft. obov., blunt; fl. purp. in term., ovate dense head with 2 sess., 3-nate ls. at or near to base; cal. hairy, teeth bristle-ptd.; pet. turns brown and encloses 4-seeded pod.

Aberlady, Eskmouth, Gogar, Linlithgow, &c.

397 **medium** L. *Zigzag Trefoil.* Hilly past. 6-18 in. Per. 5-9, plant nearly smooth; st. zigzag; stip. lanc., leafy in its free part; ls. firm, lft. rather acute; fl. crim.-purp. in large ovoid, stalked, term. head.

North Berwick, Gifford, Dirleton, Dalkeith, Dalhousie, Currie, Dalmeny, Linlithgow, Carribber.

400 **incarnatum* L. *Crimson Trefoil, Clover.* Cult. gr. 6-18 in. An. 6-7, plant softly hairy; st. erect, hairs spread.; stip. membr. broad-ov. blunt, lft. broad, obov. notched; fl. red-purp. in term. ovoid-cylind. sol. head; cal.-teeth softly hairy, narr.-ptd., spread. in fr., shorter than cor.

North Berwick, Gullane, Aberlady, Balerno, Bo'ness.

403 **arvense** L. *Hare's-foot Trefoil.* Sandy pl. 3-12 in. An. 7-9, plant softly hairy; st. nearly erect, stip. narr.; lft. narr.-obl.; fl. small, pale pink, in nearly cylind. stalked heads; cal. very hairy, teeth awl-shaped, longer than corolla.

Cockburnspath, North Berwick, Aberlady, Eskmouth, King's Park, Blackford Hill, Braids.

405 **striatum** L. *Soft-Knotted Trefoil.* Dry sandy pl. 2-12 in. An. 6-7, softly hairy; st. procumb. tufted; stip. ovate, abruptly ptd. with reddish veins; lft. obcord., silky; fl. very small, pink, in ov.-obl. sess. heads, sol. or in term. pairs; cal.-teeth awl-shaped, cal.-tube inflated in fruit.

Cockburnspath, Tantallon, Longniddry, Eskmouth, King's Park, Ratho, Bo'ness.

406 **scabrum** L. *Rough Trefoil.* Dry fields. 2-10 in. An. 5-7, st. procumb., spread.; stip. ov., abruptly ptd.; lft. obov.; fl. small, white or pale pink in sol. ov. sess. head; cal.-teeth unequal, lanc., 1-veined, stiff, recurved in fruit.

Dunbar, Inveresk, Arthur's Seat, Leith, Linlithgow.

410 **hybridum* L. *Alsike Clover.* Roadsides, &c. 4-24 in. Per. 6-9, plant smooth; st. erect, wavy; stip. large, ov.-lanc., long-ptd.; lft. obov.-lanc., sometimes marked in centre; fl. delicate pink, in glob. axill. head, stalked, later reflexed; cal. smooth; pods often only 2-seeded.

Eskmouth, Leith, Craigmillar, New Hailes, Gogar, Ratho.

411 **repens** L. *White, Dutch Clover.* Past., &c. 3-18 in. Per. 5-9, smooth; st. prostr., creep., rooting at joints;

stip. small, ov., abruptly ptd.; ls. stalked; lft. obov. toothed, "horse shoe" marked; fl. white or pink-white (standard streaked), in long-stalked, glob. axill. hds.; cal. smooth.

Aberlady, Moorfoot Glen, Braids, Boghall, Pentlands, Carrington, Dalmahoy, Bavelaw, Dechmont, Kirkliston.

412 **fragiferum** L. *Strawberry Trefoil.* Past. 6-12 in. Per. 7-9, st. creep.; stip. ov., long-ptd.; lft. obov. notched, minutely toothed; fl.-head large, purp.-red, glob. long-stalked, axill., with multifid involucre as long as cal. After flowering, cal. becomes inflated, membr., netted, enclosing the pod.

Aberlady, Longniddry, Cockenzie.

415 **procumbens** L. *Hop Trefoil.* Past., &c. 6-18 in. An. 6-9, st. nearly erect, stip. ov. ptd.; lft. obov. notched, mid-one stalked; fl. 30-40 in dense oval, axill. long-stalked hd.; standard broad-obov. grooved, later reflexed; fr. pod small, 1-seeded.

North Berwick, Haddington, Longniddry, New Hailes, King's Park, Slateford, Ratho, Abercorn, Linlithgow, Carribber.

416 **dubium** Sibth. = **minus** Relh. *Small Yellow Trefoil.* Past., &c. 6-18 in. An. 6-8, slend.; st. wiry, ascend. or prostr.; stip. ov.; lft. obcord. mid-one stalked; fl. very small, pale yell. in close 12-fld. hd.; standard pet. narr., folded.

North Berwick, Gullane, Longniddry, Eskmouth, King's Park, Cramond Island, Hopetoun, Linlithgow, Carribber.

103 ANTHYLLIS L.

418 **Vulneraria** L. *Lady's-Fingers, Kidney-Vetch.* Sandy past., &c. 4-16 in. Per. 6-8, plant silky with adpressed hairs, st. ascend.; ls. pinn., lft. unequal, narr., ent., lowest ls. reduced to 1 lft.; fl. yell. in close term. hds., 2 together, with deeply divided bract beneath; cal. hairy, pale, inflated, 5-cleft, enclosing pod; sta. all united; fr. pod 1-seeded, long-stalked.

Cockburnspath, North Berwick, Gullane, Arthur's Seat, Slateford, Ratho, Kirkliston.

104 LOTUS L. Ls. pinn.; lft. 5, 2 lowest close to st., stip. minute or 0, fl. in axill. long-stalked heads; cal.-teeth 5 equal, keel pointed; sta. in 2 bundles; fr. pod nearly straight, cylind., many seeded, longer than calyx.

420 **corniculatus** L. *Bird's-foot Trefoil.* Past., &c. 4-18 in. Per. 7-9, plant very variable; st. ascend., lft. obov., smooth; fl.-hd. long-stalked, axill. cal.-teeth erect in bud, 2 upper converging; cor. bright yell. with red-orange outside, claw of standard obovate.

Gullane, Longniddry, Port Seton, Moorfoot Farm, Pentlands, Ratho, Dalmeny, Hopetoun, Dechmont.

422 **uliginosus** Schk. = **major** Sm. = **pilosus** Beeke. *Marsh Bird's-foot Trefoil.* Marshy pl. 6-24 in. Per. 7-9, plant hairy; st. erect, hollow; lft. obov.; fl.-hd. very long-stalked; cal. teeth spread. in bud, 2 upper diverg.; cor. deep. yell., claw of standard linear.

Belhaven, Garvald, Longniddry, Auchindinny, Threipmuir, Whelpside, Balerno, Ratho, Carlowrie.

105 ASTRAGALUS L. Ls. pinn. with term. lft., stip.; fl. in axill. hd. without leafy bract; cal.-teeth 5, pet. narr. keel blunt; sta. in 2 bundles; pod cylind. or inflated.

426 **danicus** Retz. = **hypoglottis** D.C. *Purple Milk-Vetch.* Dry past. 2-9 in. Per. 6-8, slightly hairy; st. slend. ascend. stip. united oppos. the ls.; lft. 8-10 pairs, small; fl. purp. in large ov. long-stalked head; cal. with some short black hairs; fr. pod short, ov., hairy, erect.

Cockburnspath, Skateraw, Catcraig, Gullane, Gosford, Aberlady, Port Seton, Cramond Island, Dalmeny.

427 **glycyphyllos** L. *Wild Liquorice, Sweet Milk-Vetch.* Coast sand-dunes. 2-3 ft. Per. 6-9, smooth, light-gr.; st. stout, prostr., zigzag, smooth; stip. ov.-lanc.; lft. long. (4-6 in.), 5-6 pairs; fl. dull yell. or white in ov. short-stalked head.; fr. pod lin. incurved, smooth, erect.

Skateraw, Catcraig, Gullane, Gosford, Prestonpans, Cramond, Dalmeny, South Queensferry.

107 CORONILLA L.

430 **varia* L. *Crown Vetch.* Wa. pl. 1-3 ft. Per. 7-8, st. prostr. ascend. slend. ang.; stip. free; ls. pinn. with term.

lft., lfts. 9-15, ov.-obl. mucron., fl. purp.-white in 3-20 fld. axill. long-stalked umbels; cal.-teeth, unequal, 2 upper united; pet.-claws long; keel pointed, sta. in 2 bundles; fr. pod long, cyl., 4-ang., jointed.

Straiton, Slateford, Dalmeny, Carlowrie, Kirkliston.

108 ORNITHOPUS L.

431 **perpusillus** L. *Bird's-foot.* Dry pl. 4-18 in. An. 5-8, slend. hairy plant, st. prostr., ls. pinn. with term. lft.; lfts. 13-25, ellip., downy; fl. minute, white, veined crim., in long-stalked, axill. umbels, with pinn. lf. beneath; cal. long, tubular, hairy; keel-pet. blunt; sta. in 2 bundles; fr. pod long, beaked, 7-9 jointed.

Carriden, Linlithgow.

110 ONOBRYCHIS Hill.

434 **viciaefolia** Scop. = **sativa** Lam. *Saintfoin, Cockscomb.* Wa. pl. 1-2 ft. Per. 6-7, downy with adpressed hairs; st. ascend. stout; stip. membr. ptd.; ls. pinn. with term. lft., 25 lfts, ellip.-obl. mucron., downy beneath; fl. pink, streaked red, in dense, ovoid, axill. rac.; cal.-teeth very long, awl-shaped, silky; cor.-wings shorter than keel and standard; sta. in 2 bundles; fr. pod sess., twice as long as cal., flat, 1-seeded, upper edge straight, lr. curved, with veined, toothed wing or "crest."

Belhaven, Leith, Carriden, Kinneil.

111 VICIA L. St. weak, often climb; stip. half-arrowshaped; ls. pinn., lfts. usually many, term. one reduced to tendril or pt.; fl. axill, sol. or in rac.; cal. 5-toothed; pet. narr., sta. in 2 bundles, style thread-like, hairy, round, bearded below, pods 1-celled.

435 **hirsuta** Gray. *Hairy Vetch, Tare.* Wa. pl. 1-2 ft. An. 6-8, plant hairy, st. slend.; stip. 2-lobed, inner lanc., outer 3-fid.; lft. 12-16, lin. lanc. mucron.; fl. very small, bluish, in 1-6 fld. rac.; fr. pod obl., 2-*seeded*, hairy, seeds red, with dark spot.

Dunbar, Dirleton, Longniddry, Inveresk, King's Park, Comiston, Easter Howgate, Pentlands, Dalmeny, Linlithgow.

436 **tetrasperma** Moench. = **gemella** Crantz. *Smooth Tare.* Wa. pl. 1-2 ft. An. 6-8, smooth; st. slend., weak.; lfts. 6-12, lin.-lanc. mucron., fl. small, pale blue, 1-2 fld. cluster; cal.-teeth, long., triang.; standard notched, streaked; fr. pod lin.-obl., 4-*seeded*, smooth, seeds brown.

Dirleton, Inveresk, Hillend.

438 **Cracca** L. *Tufted Vetch.* Hedges. 2-6 ft. Per. 6-8, st. climb. lfts. 20, lanc. or lin. ptd., hairy; tendrils branched; fl. blue-purp. in 1-sided rac.; fr. pod compressed, lin.-obl., smooth, seeds black.

Haddington, Aberlady, Longniddry, Ormiston, Swanston, Ratho, Carlowrie, Linlithgow, Carribber.

440 **Orobus** D.C. *Wood Bitter Vetch.* Rocky pl. 1-2 ft. Per 5-6., st. stout; stip. broad, slightly toothed at base; lfts. 14-20, ov.-obl., acute, hairy; *tendril reduced to pt.*; fl. white, streaked purp.; fr. pod lin.-obl.

Cockburnspath, Tynehead, Carlowrie, Almondell.

441 **sylvatica.** L *Wood Vetch.* Woods, &c. 2-6 ft. Per. 6-8, smooth plant, st. climb., long.; lr. stip. crescent-shaped, toothed at base; lfts. 16-20, ellip.-obl., blunt, mucron.; tendril much branched; fl. creamy-white, blue-veined, in long, droop., 1-sided rac.; fr. pod smooth, broad, long (1-in.), 4-6 seeded.

Tantallon, Arthur's Seat, Roslin.

442 **sepium** L. *Bush Vetch.* Hedges. 1-3 ft. Per. 5-8, plant straggling, stip. small; lfts. 8-12, ov. blunt, mucron.; rac. 4-6 fld. sess. axill.; cal. hairy, *dusky violet*, cor. purp.; pod lin.-obl. smooth, erect.

Dunglass, Dunbar, Yester, Roslin, Balerno, Ratho, Dalmeny, Hopetoun, Linlithgow.

446 **sativa* L. *Cultivated Vetch.* Roadsides, &c. 6-18 in. An. 5-7, st. short, spread.; stip. toothed, with dark spot; lfts. 10-14 ellip.-obl., mucron., fl. sol. (or in pair), sess., axill.; pod narr., smooth, 2-3 in. long, parallel to stem.

Tynehead, Leith, Roslin.

447 **angustifolia** L. *Narrow-leaved Vetch.* Dry pl. 6-12 in. An. 4-7, plant like *V. sativa* but smaller, slender; ls. lin., acute or blunt, fl. sol. (or in pairs); pod usually spreading.

Pease Dene, North Berwick, Longniddry, Levenhall, Blackford Hill, Comiston, Kirknewton, Dalmahoy, Carlowrie.

448 **lathyroides**, L. *Spring Vetch.* Dry grav. past. 3-8 in. An. 4-6, st. spread.; lfts. 4-6, obov., mucron., tendril 0; fl. sol., axill., small, purp.; pod lin., smooth, seeds warted.

Cockburnspath, Bass Rock, Longniddry, Eskmouth, Arthur's Seat, Blackford Hill, Cramond Island, Linlithgow.

112 **LATHYRUS** L. St. weak, often climb.; stip. arrow-shaped (or half), ls. pinn. with few lfts.—term. one, and sometimes all, reduced to tendril or pt.; fl. sol. or in axill. rac.; cal. 5-toothed; pet. usually broad; sta. in 2 bundles; style flattened upwards; hairy on upper side only; fr. pod 1-celled.

450 ***Aphaca** L. *Yellow Vetchling.* Wa. pl. 1-3 ft. An. 6-7, st. weak, climb., stip. 2, large, leaflike, arrow-shaped; lft. reduced to tendril; fl. yell., 1-2 together; fr. pod nearly sickle-shaped.

Exmouth, Leith, Slateford.

454 **pratensis**. *Yellow Meadow Vetchling.* Hedges, &c. 1-3 ft. Per. 6-9, st. ang., straggling; stip. narr.; lft. 2, lanc., mucron., tendrils branched; fl. yell., 6-10 in. long-stalked, short rac.; fr. pod lin.-obl., compressed, veined.

Haddington, Gullane, Longniddry, Roslin, Swanston, Ratho, Dalmeny, Carlowrie, Carribber.

460 **montanus** Bernh. = **macrorrhizus** Wimm = **Orobus tuberosus** L. *Tuberous Bitter Vetch.* Woods, &c. 6-15 in. Per. 5-8, root-stock tuberous; st. simp. smooth, winged; stip. broad; lfts. 4-8 ellip.-obl. blunt, smooth, *tendril reduced to point*; fl. red-purp. in loose, axill. 2-fld. rac.; fr. pod cylind.

Brunstane, Auchindinny, Roslin, Penicuik, Swanston, Lymphoy, Balerno, Ratho, Dalmahoy.

(*b*) **tenuifolius** Dr. var. with lin.-lanc. lft.

Hope's Water, Lammermoors, Moorfoot Glen, Gorebridge.

26. ROSACEAE.

Rose Family—Herbs, shrubs or trees, ls. alt., stip. simp. or comp., sep. 4-5, pet. 4-5, sta. many, carpels 1, 2, 5, or many, ovary often 5-celled; fr. various.

Key to Genera.

(1) *Fr. fleshy drupe (plum, &c.), tree or shrub; ls. simp.*	*Prunus*	113
(2) *Fr. group of drupels (bramble, &c.), shrub, straggling; fl. white*	*Rubus*	115
(3) *Fr. group of 3-12 follicles, herb or shrub, ls. pinn.*	*Spiraea*	114
(4) *Fr. group of achenes; cal. 5 or 4 cleft, with epicalyx:*		
(*a*) *Fr. on long dry recept., awned; ls. pinn., fl. yell.*	*Geum*	117
(*b*) *Fr. on short dry recept.; ls. pinn. or palm.*	*Potentilla*	119
(*c*) *Fr. on fleshy recept. (strawberry); ls. 3-nate, fl. white*	*Fragaria*	118
(5) *Fr. 1-5 achenes within calyx-tube:*		
(*a*) *Pet. 0, cal. 4-5 cleft with epicalyx; sta. 1-4; fl. gr., minute*	*Alchemilla*	120
(*b*) *Pet. 0, cal. 4-lobed, petaloid; sta. 20-30, fl. purp.*	*Poterium*	122
(*c*) *Pet. 5, cal.-tube spinous; sta. 12-20, fl. yell.*	*Agrimonia*	121
(6) *Fr. many achenes within fleshy calyx-tube (hip), shrub*	*Rosa*	123
(7) *Fr. various; tree:*		
(*a*) *Fr. large, fleshy, with horny 2-5-celled core (apple, &c.)*	*Pyrus*	125
(*b*) *Fr. small, berry-like (rowan, &c.)*	*Sorbus*	124
(*c*) *Fr. oval drupe with 1-5 celled bony core (haw)*	*Crataegus*	126

113 **PRUNUS** L. Trees or shrubs; ls. simp., toothed; glands on petiole; fl. in small bunches or in rac.; cal. free, 5-cleft, decid.; pet. 5, sta. 15-20, styles 1-5, united; fr. fleshy drupe with hard, smooth stone.

462 **spinosa** L=**communis** Huds. *Sloe, Blackthorn.* Hedges, &c. 3-8 ft. Per. 3-4, branches very spiny, bark blackish; ls. narr., toothed; fl. white, mostly sol., before ls.; fr. glob., black, glauc.

Tynninghame, Haddington, Arniston, Blackford Hill, Ratho, Dalmeny, Philipstoun, Carriden, Almondell.

463 **insititia** L. *Bullace.* Hedges, &c. 6-15 ft. Per. 4-5, branches not very spiny; ls. obl.-obov., toothed, usually downy beneath; fl. white; fr. glob. (1 in.), black or yell.

Lasswade, Colinton, Dalmahoy.

464 **domestica* L. *Wild Plum.* Hedges. 6-20 ft. Per. 4-5, branches not spiny, downy; ls. ov.-ellip., doubly toothed, hairy on midrib beneath, fls. white in pairs; fr. roundish, yell. or purp.

Arniston, Craigmillar, Cramond.

465. **Avium** L *Wild Cherry, Gean.* Woods. 15-30 ft. Per. 5-6, ls. ellip., droop., downy beneath, sharply toothed, petiole with 2 glands; fl. white in almost sess. umbels; cal.-tube contracted at mouth; cor. open, pet. 2-fid with minute claw; fr. heart-shaped, black or red.

Dunbar, Dunglass, Arniston, Roslin, Dalmahoy.

467 **Padus** L. *Bird Cherry.* Woods. 10-25 ft. Per. 5-6, ls. obov., narr., minutely doubly toothed, smooth, petioles with 2 glands; fl. *small, white, in hanging rac.*; fr. ovoid, black.

North Berwick, Pressmennan, Ormiston, Longfauch, Arniston, Roslin, Penicuik, Dalmahoy, Carriden, Linlithgow.

114 SPIRAEA L. Herb; fl. usually small, num. in cymes; cal. free, 5-cleft, persist., pet. 5, sta. many, carpels 3-5; fr. 1 or more follicles, seeds 2-6.

468 **salicifolia* L. *Willow-leaved Spiraea.* Hedges, &c. 2-5 ft. Per. 6-7, ls. obl.-lanc., toothed, smooth, fl. pink, in dense rac.

Arniston, Roslin, Colinton, Craigiehall, Carriden.

469 **Ulmaria** L. *Meadow-Sweet, Queen-of-the-Meadow.* Moist meads. 2-4 ft. Per. 6-9, st., usually red, smooth; ls. interruptedly pinn., gr. above, white downy beneath; lft. ovate, ent., term. one large, deeply 3-fid.; fl. in flat cymes, creamy; fragrant; fr. 5-8, spirally-twisted follicles.

East Linton, Haddington, Longniddry, Prestonhall, Auchindinny, Gogar, Dalmeny, Manuel, Carribber.

470 **Filipendula** L. *Dropwort.* Past. 6-24 in. Per. 6-8, Rootlet's tuberous; ls. mostly rad., interrupt.-pinn., lft. lanc. toothed, smooth, deep gr.; fl. yell.-white, tinged red in bud.

Arthur's Seat, Blackford Hill, Penicuik, Linlithgow.

115 RUBUS L. Prickly, scrambling shrubs, or herbs; ls. scattered, pinn. or palmate, rarely simply lobed; fl. in term. and axill. clusters, rarely sol.; cal. free, 5-lobed, persist.; pet. 5; fr. of many succulent drupels on conical or obl. receptacle.

471 **idaeus** L. *Rasp, Hind-berry.* Copses, 2-5 ft. Per. 6-8, st. nearly erect, with suckers, round, prickles weak; ls. 3-5-pinn., hoary beneath, term. lft. long-stalked, ov.-acum., coarsely toothed; pan. corymbose, fl. droop. pet. narr., white; fr. red or yell., separ. from recept. when ripe.

Dunbar, East Linton, Salisbury Crags, Arniston, Roslin, Ratho, Linlithgow.

"**fruticosus**" *Bramble.* Collective name for many allied forms; st. shrubby, without suckers, usually ang., prickly; ls. palm-fid.; fl. in erect pan.; fr. claret-coloured or black, not separ. from recept. when ripe.

473 **suberectus** And. *Upright Bramble.* Boggy woods, &c., 3-6 ft. Per. 7-9, st. nearly erect, blunt, ang., prickles few, conical; ls. 3-7 nate, term. lft. cord.-acum.; lft. thin, unequally toothed; fl. in flat pan.; sep. reflexed; fr. dk.-red.

Colinton, &c.

476 **plicatus** Wh. & N. *Plaited-leaved Bramble.* Heaths. 3 ft. Per. 7-8, st. prickly angled; ls. 5-nate, lft. more or less plaited, thin, slightly hairy, term. lft. cord.-acum.; fr. dk.-red, fr.-cal. reflexed.

Musselburgh, Dalkeith.

479 **affinis** Wh. & N. *Wavy-leaved Bramble.* Heaths, &c. Per. 7-9, st. often arching, ang., smooth ; prickles on angles strong, deflexed ; ls. 5-nate ; lft. leathery, wavy near end, gr. on both sides, silky beneath, term. lft. cord.-ov., abruptly ptd. ; basal lft. stalked, narr. at base ; pan. leafy, sep. acum., gr.-felted with pale edges.
Musselburgh, Dalkeith.

483 **latifolius** Bab. *Broad-leaved Bramble.* Open woods. Per. 7-8, st. arching, strong, gr. ang., grooved ; prickles slend. ; ls. 5-nate, lft. very broad, thin, hairy on both sides, doubly toothed, term. lft. cord.-acum., basal lft. imbric. ; pan. short, leafy ; ped. felted.
Colinton, Cramond Bridge.

486 **carpinifolius** Wh. & N. *Hornbeam-leaved Bramble.* Open hilly pl. Per. 7-8, st. high, arched, ang., streaked with clustered spread. hairs, ls. 5-nate, lft. thin, finely, irreg. toothed, teeth pointing forward ; densely hairy beneath, term. lft. obov., abruptly ptd. ; pan. narr., racemose, hairy ; pet. white or reddish ; sep. reflexed.
Dalkeith, Colinton, &c.

487 **incurvatus** Bab. *Purple-stemmed Bramble.* Heaths, &c. Per. 7-9, st. arched, strong, dk.-purp. ; prickles strong, spread. ; ls. 5-nate, lft. leathery, doubly toothed, acum. with incurved, wavy edges, glossy above, gr.-white felted beneath, term. lft. cord.-ov. ; pan. narr., leafy, hairy ; pet. roundish, pink.-sep. ov.-acum.
Dunbar, Dalhousie, Linlithgow.

488 **Lindleianus** Lees. *Lindley's Bramble.* Copses. Per. 7-8, st. erect, arched, shining, smooth ; prickles strong ; ls. 5-nate, lft. rather leathery, glossy above, slightly felted beneath ; term. lft. roundish, acum., basal lft. stalked, directed backwards ; pan. leafy, rachis polished, ped. felted, prickles strong, declining.
Roslin, Colinton.

491 **rhamnifolius** W. & N. *Buckthorn-leaved Bramble,* Copses. Per. 7-8, st. high, arched, ang., grooved, bright red, smooth ; prickles strong, spread. ; ls. 5-nate, lft. leathery above, felted beneath, finely toothed, term. lft. ovate or cord., basal lft. stalked ; pan. dense, blunt, felted, prickles yell. tipped red ; pet. roundish.
Dunbar, Dalhousie, Roslin, Linlithgow.

500 **vilicaulis** Koehl. *Downy-stemmed Bramble.* Woods, &c. Per. 7-8, st. arched, prickles strong, hairs spread. ; ls. 5-nate, thin, toothed, pale gr., glossy, densely hairy on veins beneath, term. lft. obov. or roundly cord. ; pan. lax, leafy, hairy, prickles slend., deflexed ; sep. reflexed.
Cramond Bridge, Carriden.

514 **macrophyllus** W. & N. *Large-leaved Bramble.* Copses. Per. 7-8, st. arched ang., hairy ; prickles small, short, from very large base ; ls. 5-3 nate, lft. often very large, irreg.-toothed, hairy only on veins, rarely felted beneath, term. lft. oval ; pan. large, leafy, with spread. branches ; sep. leaf-ptd.
Linlithgow, &c.

533 **mucronatus** Blox. (not Ser.). *Mucronate Bramble.* Hedges. Per. 7-8, st. arched, becoming almost naked, prickles few, slend. bristles few ; ls. 5-nate, lft. finely toothed ; pan. narr. ; sep. with lin. pt. ; pet pale pink.
Dunbar, Avonside.

542 **radula** Whe. *Rough-stemmed Bramble.* Hedges. Per. 7-8, st. arched ang., rough with small raised pts., from which the bristles fall, prickles slend., declin. ; ls. 5-nate, lft. finely double-toothed, gr.-white felted beneath, term. lft. obov.-acum. ; pan. long, leafy ; sep. ovate, reflexed.
Roslin, Cramond Bridge.

544 **rudis** Whe. *Rough-leaved Bramble.* Copses. Per. 7-8, st. arch. ang., prickles strong, bristles and hairs short ; ls. 5-nate, rough above, coarsely double-toothed, gr.-white felted beneath, term. lft. ov.-acum. ; pan. long, leafy ; prickles strong, deflexed ; sep. strongly reflexed.
Craigmillar, &c.

579 **Bellardi** Wh. & N. *Glandular Bramble.* Copses. Per. 7-8, st. arched, almost round, cov. with prickles, bristles and gland. hairs ; ls. 3-nate, lft. nearly equal, obl. doubly toothed, lat. lft. divaricate ; pan. very open, rachis wavy, felted with gland. hairs.
Gullane, Eskside, &c.

586*f.* **tuberculatus** Bab. *Bramble.* Hedges. Per. 7-9, st. arched ang., prickles unequal, declin. from a tuberculate base ; ls. 3 nate (or 5-nate), term. lft. roundish with abrupt

pt., lat.-lft. large, lobed, hairy on veins beneath; pan. narr. leafy; sep. ov.-acum. setose, loosely adpressed to fr.; pet. pinkish.

King's Park, Blackford Hill.

587 **corylifolius** Sm. Sp. Coll. *Hazel-leaved Bramble.* Copses. Per. 7-9, st. arched almost round, slightly glauc., prickles very few, slend., spread.; ls 5-nate; lf. doubly toothed, scattered hairs above, felted beneath, term. lft. roundly cord., basal lft. imbric.; pan. lax; ped. downy; sep. ov. with abrupt pt., woolly, reflexed.

Roslin, Auchindinny, Craigcrook, Linlithgow.

590 **coesius** L. *Dewberry.* Damp pl. 2-6 ft. Per. 7-9, st. prostr., round, glauc., prickles small, deflexed; ls. 3-nate, lft. coarsely toothed; term. lft. ovate or 3-lobed, lat. lft. 2-lobed; pan. almost simp.; sep. ov. with long. lin. pt. clasp. the glauc. fruit.

Pease Dene, Tynninghame, Dalkeith, Liberton, Cramond Bridge, Hopetoun, Bo'ness.

591 **saxatilis** L. *Stone Bramble, Roe Blackberry.* Rocky pl. 6-12 in. Per. 7-9, st. herbaceous, long, rooting at nodes, prickles few, or 0; ls. 3-nate; fl.-shoot erect with term. 2-3 fld. corymb.; fl. white; fr. 1-4 large, bright red drupes.

Aikengall, Shippath Dean, Roslin, Auchindinny, Dalhousie, Arniston, West Linton, Mid-Calder, Linlithgow.

592 **Chamaemorus** L. *Cloudberry, Mountain Rasp.* Mt. peaty moors. 6-12 in. Per. 7-8, creep, st. herb. erect: ls. bluntly 5-7 lobed; fl. large, term. sol. white, dioecious; fr. large, red-orange when ripe.

Lammermoors, Mendick Hill, East Cairn Hill, Pentlands.

117 GEUM L. Herb; ls. pinn., segm. very unequal; fl. yell. or red, singly on long ped.; cal. persist., 5-cleft. epicalyx 5-cleft.; pet. 5, sta. many; style elongating after flowering; fr. many small nuts tipped with the persist., jointed, hooked styles as awns.

594 **urbanum** L. *Wood Avens.* Hedges, woods. 1-3 ft. Per. 6-8, st. erect.; ls. interrupt. pinn., st.-ls. 3-nate, stip. large, leaflike; fl. erect, yell.; pet. spread.; fr.-head sess. upper part of awn short, smooth.

Dunbar, North Berwick, Longniddry, Hawthornden, Comiston, Ratho, Dalmeny, Kirkliston, Carribber.

595 **rivale** L. *Water Avens.* Damp pl. 1-2 ft. Per. 6-7, st. erect.; ls. mostly rad., interrupt. pinn., lyrate; stip. smaller; fl. droop. purp.-brown with orange tint; sep. reddish brown; pet. notched; head of fr. stalked, upper part of awn feathery.

North Berwick, Haddington, Longniddry, Arniston, Roslin, Ratho, Dalmeny, Hopetoun, Carribber.

× **urbanum = intermedium** Ehrh. Many hybrids combine characters of both parents in various ways.

Haddington, Ormiston, Gorebridge, Roslin, Dalkeith, Colinton, Currie, Mid-Calder, Dalmeny, Linlithgow, Carribber.

118 FRAGARIA L. Herb with runners, ls. gen. 3-nate; cal. with epicalyx, pet. 5, sta. many; fr. many small nutlets sunk in fleshy recept.

596 **vesca** L. *Wild Strawberry.* Hedges, woods. 2-6 in. Per. 5-7, tufted, with runners forming new plants at every joint; ls. mostly rad., with soft hairs, 3-nate; lft. ovate, toothed; ped. few-fld.; fl. white; *ped.-hairs adpress. upwards;* pet. as long as broad; fr.-cal. reflexed; fr. red, succulent.

Haddington, Dirleton, Longniddry, Gorebridge, Polton, Juniper Green, Dalmeny, Kirkliston, Philipstoun.

597 **moschata* Duch. = *elatior* Ehrh. *Hautbois Strawberry.* Plantations. 4-10 in. Per. 5-7, larger, more hairy than *F. vesca., hairs on ped. spread., deflex.;* pet. broader than long, some fl. dioecious; fr. succulent but *without carpels round base.*

Smeaton, Arniston, Dalkeith, Roslin, Liberton.

119 POTENTILLA L. Herb, rarely shrubby, tufted, sometimes creep., ls. pinn. or palm.; ped. 1-fld. or cymose; fl. yell. or white, rarely purp., cal. with epicalyx; pet. 5, rarely 4., sta. many, style not elongating; fr. many small nutlets crowded on dry receptacle.

598 **norvegica* L. *Norwegian Potentil.* Wa. pl. 6-12 in. An. 7-8, st. erect; *ls. 3-nate,* lft. obl.-lanc., coarsely toothed, 1-2 in. long; fl. yell. in crowded term. cymes—introduced with Norwegian timber.

Leith Docks, Granton, Bo'ness.

599 **sterilis** Garcke. = **Fragariastrum** Ehrh. *Barren Strawberry.* Woods, banks. 2-6 in. Per. 3-5, st. procumb., ls. 3-nate, lft. cren., very hairy ; fl. white like that of strawberry, but pet. narr., *showing gr.* sep. between ; seeds cov. with hairs at base, on dry receptacle.

North Berwick, Gifford, Longniddry, Inveresk, Arniston, Roslin, Dalmeny, Philipstoun, Carribber.

600 **verna** L. = **minor** Gil. = **Tabernaemontani** Asch. *Spring Cinquefoil.* Hilly past. 3-6 in. Per. 4-5, hispid ; st. prostr., woody, tufted ; rad.-ls. 5-nate, long-stalked ; lft. blunt, toothed, hairy on edges and veins ; fl. 2-3 together, yell.

Dunbar, Longniddry, Cockenzie, Arthur's Seat, Craiglockhart.

602 **erecta** Hampe = **Tormentilla** Sibth. Nest. = **sylvestris** Neck. *Tormentil.* Heaths. 6-10 in. Per. 6-9, st. erect ; st.-ls. alt. sess. of 3- (rarely 5-) lobed lfts., ped. long, sep. 4, pet. 4 yell.

Prestonhall, Brunstane, Fala, Crichtoun, Glencorse, Rullion Green, Swanston, Balerno, Ravelrig.

603 **procumbens** Sibth. *Creeping Tormentil.* Woods, heaths. 6-15 in. Per. 6-9, st. procumb., rooting at joints ; ls. 3-nate, stalked, st.-ls. 3-5 nate, fl. sol , pet. 4-5 yell.

Bavelaw.

604 **reptans** L. *Creeping Cinquefoil.* Roadsides. 6-18 in. Per. 6-9, st. prostr., slender, rooting ; ls. 5-nate, long-stalked, lft. obov., bluntly toothed, hairy, ped. long ; fl. sol. (1 in) sep. 5, pet. 5 yell. ; fr. gran.

North Berwick, Aberlady, Gosford, Longniddry, Levenhall, Craigmillar, Corstorphine.

605 **Anserina** L. *Silverweed.* Roadsides. 3-12 in. Per. 6-8, st. prostr., creep ; ls. interrupt. pinn. ; lft. deeply toothed, densely silky beneath, ped. long ; fl. sol. at rooting joints, large, yell.

North Berwick, Longniddry, Seton Mains, Fala, Roslin, Craiglockhart, Dalmeny, Kirkliston, Linlithgow.

609 **argentea** L. *Hoary Cinquefoil.* Grav. past. 4-18 in. Per. 6-8, st. decumb. at base, erect above, very downy ; ls. 5-nate, lr. ls. long-stalked, upper ls. almost sess. ; lft. wedge-shaped, cottony beneath, margins rolled back ; fl. small, yell. in term. corymbs, pet. 5.

Tynninghame, East Linton, Dirleton, Gorgie, Binny Crag, Kirkliston.

610 **fruticosa** L. *Shrubby Cinquefoil.* Rocky pl. 2-4 ft. Per. 6-7, st. shrubby ; lft. 5, narr. ent. edges rolled back, silky, 3 upper lft. connected and dist. from lower 2.

Gosford, Prestonhall, Roslin, Colinton.

611 **palustris** Scop. = **Comarum palustre** L. *Marsh Cinquefoil.* Bogs. 6-20 in. Per. 6-7, st. ascend., purp.-brown ; ls. 5-7, pinn. ; lft. lanc., sharply toothed, slightly hairy ; fl. large dk. purp., recept., spongy.

Aikengall Moss, Duddingston, Balerno, Ravelrig, Ratho, Linlithgow.

120 ALCHEMILLA L.

Herb, tufted ; ls. round, more or less divided ; fl. small yell.-gr. ; cal. and epical. 4-cleft. ; pet 0, sta. 4 or fewer.

613 **arvensis** Scop. *Field Lady's Mantle, Parsley Piert.* Sandyfields, &c. 3-5 in. An. 5-8, st. prostr., short ; ls. round, 3-fid, lobes wedge-shaped, downy ; fl. minute, in sess. axill. hd. almost enclosed in leafy stipules.

Dunbar, Gullane, Longniddry, Brunstane Castle, Boghall, South Queensferry, Abercorn, Carribber.

614 **vulgaris** L. agg. *Common Lady's Mantle.* Past., &c. 6-18 in. Per. 6-9, ls. kidney-shaped, plaited, 7-9 lobed, reg. toothed, rather hairy ; rad.-ls. large, long-stalked ; st.-ls. sess. with large gr. tubular toothed stipules ; fl. yell.-gr. in loose term. clusters.

North Berwick, Gifford, Longniddry, Roslin, Balerno (var. glabra), Ratho, Dalmeny, Kirkliston, Hopetoun, Linlithgow.

121 AGRIMONIA L.

627 **Eupatoria** L. *Agrimonia.* Banks. 18-24 in. Per. 6-7, herb, erect ; ls. interrupt. pinn , deeply toothed, shaggy beneath ; fl. small. yell. in long, tapering, term.

rac.; cal. 5-cleft, cal.-tube obconical, deeply grooved; pet. 5; sta. 12-20; fr. 2 nutlets in dry, persist. cal. cov. with hooked bristles.

North Berwick, Luffness, Longniddry, Port Seton, Arniston, King's Park, Balerno, Kirkliston, Linlithgow, Carribber.

122 POTERIUM L. Herb, st. ascend.; ls. pinn.; ped. long; fl. in dense, glob. or ovate hd.; cal. simp. with 4 petal-like lobes, ped. 0, sta. 4-30; fr. 1-3 seeds enclosed in dry cal.-tube.

629 **Sanguisorba** L. *Lesser Burnet.* Dry past., &c 6-18 in. Per. 6-8, sometimes rather downy; ls. pinn., lft. small sess., ov. toothed; ped. long; fl.-hd. glob., light gr., rarely purplish, monoecious, lr. fls. male with 20-30 project. tufted sta., upper fls. fem. with long style ending in crim. tufted stig.; fr.-cal. 4-ang. with netted veins between 4 ent. wings.

Tynninghame, Cockburnspath, North Berwick, Gorebridge, Dalkeith, Straiton.

631 **officinale** (L.) A. Gray = **Sanguisorba officinalis** L. *Great Burnet.* Sand dunes. 1-3 ft. Per. 6-8, ls. mostly rad, lft. 9-13, obl., stalked, toothed; ped. long, fl.-hd. oblong; fl. crowded, tinged dk.-purp., perfect; sta. 4 not project.; fr.-cal. round, smooth, 4-winged on upper half.

Aberlady.

123 ROSA L. Shrub, usually prickly; ls. alter. pinn.; stip. leafy; fl. sol. or in clusters; cal.-tube glob. or ovoid, contracted at top, 5-cleft.; pet. 5, sta. many, inserted on disc at mouth of cal.-tube; carpels 1-seeded, hairy, enclosed in cal.-tube which grows rather succulent; fr. when ripe, rather dry, red or black berry.

The classification of this genus is very difficult owing to hybridisation and rehybridisation. Typical forms are easily recognisable; but all of them have connecting links with others through innumerable varieties, thus the species given may be looked upon as groups.

Key to Groups.

1. *Sect. Synstylae: styles smooth, united in long project. col. equal. sta.; outer sep. gen. ent., prickles v. var. hooked; upper stip. on fl.-st. not much broader than mid ones; habit weak, trailing* . . . . . *R. arvensis* 632

2. *Sect. Spinosissimae: style free, short, with broad woolly hd. of stig.; sep. ent., upper stip. of fl.-st. narr. with very diverg. ears; ped. sol. without bracts, st. cov. with mixture of prickles, bristles, gland. hairs; habit dwarf, often creeping* . . . . . *R. spinosissima* 637

3. *Sect. Caninae: styles norm. free, smooth, hispid or woolly; sep. pinn.; upper stip. of fl.-st. much broader tham mid ones; ped. with bracts, prickles uniform, rarely mixed:*
   - (a) *Subsect. eu-caninae: arch. habit; prickles gen. stout, uniform, hooked:*
     - (1) *Lft. smooth, style smooth (or slightly hispid); sep. reflex., fall. before fr. ripens; fr. late in ripening* . . *R. canina* 657
     - (2) *Lft. more or less downy—"a hairy canina"* . . . . . *R. dumetorum* 660
     - (3) *Styles in dense hemispherical woolly mass; sep. erect, or rarely reflex., not fall. until fr. ripens; fr. softer, ripening earlier:*
       - (α) *lft. smooth* . . . . *R. glauca* 661
       - (β) *lft. more or less hairy* . . *R. coriifolia* 662
   - (b) *Subsect. rubiginosae: prickles usually less hooked than in eu-caninae; ls. with scent-glands below, never very hairy:*
     - (1) *Habit low, erect, larger prickles hooked, mixed with acicles, espec. on fl.-branches; ped. rather short, hispid* . . . . . *R. rubiginosa* 671
   - (c) *Subsect. villosae: habit var., prickles uniform, straight or slightly sickle-*

shaped ; lft. doubly toothed, v. hairy and gland. at least below :		
(1) *Low-growing with erect branches ; sep. rather long, scarcely pinn., very erect, fleshy at base, persist. till fr. decays*	*R. mollis*	666
(2) *Habit intermed. betw. R. mollis and R. tomentosa ; sep. more pinn., not fleshy at base, erect, persist. till fr. ripens ; ped. short* . . .	*R. omissa*	669
(3) *Habit tall, arch. ; sep. fully pinn., spread. or nearly erect, falling early before fr. ripens ; ped. rather long* .	*R. tomentosa.*	670

632 **arvensis** Huds. *Trailing Rose.* Hedges, woods. 2-6 ft. Per. 6-8, st. trailing, prickles unequal hooked ; lft. oval, simp. toothed, dull gr. above, glauc. beneath ; ped. hairy ; fl. white ; sep. purp., slightly pinn., reflex., decid. ; styles united in slend. column, as long as sta., smooth ; fr. small, glob.

Gosford, Cockenzie, King's Park, Dalhousie, Blackford Hill, Grangemouth.

637 **spinosissima** L. *Burnet or Scotch Rose.* Heaths, sand-dunes. 1-3 ft. Per. 5-7, st. erect, much branched, cov. with many unequal prickles, bristles and gland. hairs ; ls. of 7-9 lfts. simply toothed, small, smooth above ; fl. sol. white ; sep. quite half as long as cor., ent., acum. ; fr. smooth, glob., black.

Gullane, Aberlady, Longniddry, Port Seton, Blackford, Dalmeny, Currie.

639 × **hibernica** Templ. Copses. 1-3 ft. Per. 5-6, prickles slightly hooked ; lft. dk. green, often glauc., roundish, coarsely reg.-toothed ; petiole downy, slightly prickly without glands ; ped. smooth, sep. pinn., style hairy, pet. rose ; fr. nearly round. (Hybrid of 637 and. 660.)

Haddington, nr. Melville Hall.

644 × **involuta** Sm. *Wild Rose.* Copses. 1-4 ft. Per. 6-7, prickles crowded, very unequal, straight or curved, few gland. hairs ; lft. doubly toothed, downy, gland beneath ; fl. 1-3 together ; sep. long, mostly simp. ; fr. glob., red, with gland. hairs. (Hybrid of 637 and 670.)

Kinneil.

645 × **Sabini** Woods. *Sabine's Rose.* Copses. 1-3 ft. Per. 6-7, st. erect, prickles scattered, unequal, straight, few gland. hairs ; lft. doubly toothed, hairy, gland. beneath ; sep. long, slightly pinn. ; fr. glob., dk.-red, bristly.

Tynninghame, Dalhousie, Blackford, Colinton, Avonside.

654 × **cantiana** W.-Dod. Copses. 2-4 ft. Per. 6-7, st. erect, prickles rather crowded, unequal, largest curved ; lft. doubly toothed, small, roundish, hairy, gland., scented ; sep. erect, slightly pinn. ; ped. gland.-hispid ; fr. roundish or broadly ovoid, more or less hispid. (Hybrid betw. 637 and 671.)

Port Seton.

657 **canina** L. *Dog Rose.* Hedges, &c. 3-8 ft. Per. 6-7, st. erect, arched, prickles uniform, hooked ; lft. 5-7, smooth, simply or doubly toothed, without glands ; ped. smooth ; fl. pink or white ; sep. pinn., reflexed, fall. before fr. ripens ; styles free, smooth or slightly hispid ; fr. ovoid, smooth, late ripening.

East Linton, Gifford, Longniddry, Musselburgh, Cockpen, Craigmillar, Blackford Hill, Kirkliston, Linlithgow, Bo'ness.

(*a*) **lutetiana** (Lem.) Bak. Lft. simply toothed.

Musselburgh, Ormiston, &c.

(*r*) **dumalis** Bechst. = **sarmentacea** Woods. Lft. doubly toothed, smooth, with marginal glands.

Musselburgh, &c.

660 **dumetorum** Thuill. *Dog Rose.* 3-6 ft. Per. 6-7, like *R. canina ;* lft. more or less downy, simply toothed ; ped. smooth ; sep. downy on edge ; fr. large, almost glob. ; "a hairy-leaved *R. canina.*"

Musselburgh, Bo'ness.

661 **glauca** Vill. *Wild Rose.* Copses. 3-8 ft. Per. 6-7, st. erect, arched ; lft. smooth, often glauc., not gland. beneath, simply or doubly toothed ; fl. pink ; ped. short, smooth or

hispid; sep. erect, rarely reflexed, fall. on ripening of fr.; styles form dense, round, woolly mass; fr. oval, early ripening.

Dalmeny, &c.

a. **Reuteri** God. Lft. simply toothed; prickles slend.; ped. short; sep. pinn.

Bo'ness, &c.

d. **subcristata** Bak. = **intermedia** Gren. Lft. doubly toothed, glauc., mostly tipped with gland; sep. erect.-spread. pinn. persist.

Manuel, &c.

subcanina with reflexed sepals.

Dalmahoy, &c.

662 **coriifolia** Fr. *Wild Rose.* Copses. 3-8 ft. Per. 6-7, st. erect. arched; lft. hairy at least below, simply or doubly toothed; ped. smooth or hispid, gland.; fl. pink; sep. erect, rarely reflexed, fall. when fr. ripens; styles form dense, round, woolly mass; fr. nearly glob., ripening early.

Longniddry, Ormiston, &c.

m. **caesia** Sm. Lft. doubly toothed, downy; ped. smooth or slightly hispid; sep. reflexed, distantly pinn., downy on edge.

Prestonpans, Dalhousie.

666 **mollis** Sm. = **villosa** L. *Downy Rose.* Copses. 3-6 ft. Per. 6-7, st. tall, prickly, straight, prickles uniform, straight; lft. doubly toothed, very hairy, with glands beneath; fl. red or white; sep. fairly long, slightly pinn., fleshy at base, persistent on ripe fr., no disc.; fr. large, bristly or nearly smooth.

Longniddry, Cockpen.

669 **omissa** Desegl. *Downy Rose.* Copses. 3-6 ft. Per. 6-7, st. erect, arched, prickles straight, petioles prickly, hairy, gland.; lft. oval, hairy on both sides, doubly toothed, gland.; ped. short, hidden by bracts; sep. short, ov.-pinn. erect after pet. fall.; fl. rose, style hairy; fr. large, smooth or prickly, ovoid or pear-shaped.

Longniddry, nr. Edinburgh, &c.

670 **tomentosa** Sm. = **mollissima** Willd. *Downy-leaved Rose.* Copses. 5-8 ft. Per. 6-7, st. usually tall, stout, arched, branches 6-10 ft., prickles uniform, stout, almost straight or slightly curved; lft. doubly toothed, downy; sep. pinn., rather long, spread., fall. as fr. ripens; fr. obl. with slight disc.

Cockpen, Leith, Slateford, &c.

f. **scabriuscula** Sm. Lft. large, gr. beneath, few hairs, few glands; sep. reflexed, fall. early.

Prestonpans.

671 **rubiginosa** L. = **eglanteria** Huds. *Sweet Briar, Eglantine.* Hedges, &c. 3-6 ft. Per. 6-7, small compact bush; main prickles hooked, smaller straight, unequal; lft. doubly toothed, rounded at base, hairy, gland. beneath; fl. pink; sep. pinn., long, persist. with gland. hairs; fr. pear-shaped, red—plant very odorous.

North Berwick, Aberlady, Longniddry, Port Seton, Blackford Hill, Craiglockhart, Ravelrig, Dalmeny, Linlithgow, Carribber.

124 SORBUS L. Trees or shrubs; ls. pinn. or more or less lobed, toothed; fl. small in corymbs; fr. small., glob.

676 **aucuparia** L. = **Pyrus aucuparia** (L.) Ehrh. *Rowan, Mountain Ash.* Woods, &c. Per. 5-6, ls. pinn.; lft. 11-19, narr. obl. toothed, downy beneath; fl. small, creamy-white, very many in corymb, style gen. 3; fr. small, glob., bright-red, 2-4 celled.

Dunbar, Pressmennan, Haddington, Arniston, Roslin, Colinton, Dalmeny, Hopetoun, Carribber.

683 **Aria** Crantz. = **Pyrus Aria** (L.) Ehrh. *White Beam.* Woods, &c. Per. 5-6, ls. ovate, variously lobed or cut, toothed, white-felted beneath; fl. white, in small corymb., styles gen. 2; fr. small, glob. or ovoid, reddish, 2-celled.

Gosford, Arniston, Musselburgh, Arthur's Seat (var. rupicola), Craiglockhart, Canal Banks, Dalmahoy.

125 PYRUS L. Trees; ls. ovate, toothed; fl. sol. or few together, larger; fr. large, fleshy, glob. or pear-shaped, with 5 cartilaginous cells.

687 ***communis** L. *Pear.* Hedges, &c. Per. 5-6, ls. ellip. toothed, acum., smooth above; fl. white, styles 5, long, distinct; fr. pear, 5-celled.

Duddingston, Craigmillar, Dalmeny.

689 **Malus** L. *Crab-Apple.* Hedges, &c. Per. 4-5, ls. ovate, toothed, wrinkled above; fl. white, shaded pink, styles united below; fr. glob., reddish-gr., 5-celled—apple.

Arniston, Roslin, Dalhousie, Auchindinny, Swanston, Dalmeny, Ravelrig, Carlowrie, Philipstoun.

126 **CRATAEGUS** L. Small tree, spiny; ls. obov., more or less divided into 3-5 irreg. lobed and toothed segm.; fl. white or pink, scented, in corymb; sep. 5, pet. 5, sta. many, anther pink; fr. red, oval drupe with 1-5 bony stones—"haw."

691 **Oxyacantha** L. = **oxyacanthoides** Thuill. = **digyna.** *Hawthorn.* Hedges, &c. Per 5-6, spinous; ls. lobed, lower-nerves incurved, ped. and cal. usually smooth, cal.-lobes triang., acum, styles 2-3; fr. oval, 1-3 stoned.

Slateford (nr. Canal Bridge).

692 **monogyna** Jacq. = **Oxyacantha** L. p.p. *Hawthorn.* Hedges, &c. Per. 5-6, spinous; ls. very deeply divided, lobed, lower nerves curved outward; ped. and cal. downy with soft hairs, cal.-lobes lanc.-acum., style 1 (rarely 2), bent; fr. nearly glob., 1-stoned.

East Linton, North Berwick, Haddington, Roslin, Bilston, Slateford, Kirkliston, Hopetoun, Linlithgow.

27. SAXIFRAGACEAE.

Saxifrage Family—Herbs or shrubs; fl. reg., sep. 4-5, pet. 4-5 or 0, sta 4-10, carpels 2-4, united, placent. parietal; fr. a capsule or berry.

Key to Genera.

I. *Herbs:*

A. *Petals* 5:

(1) *Sta.* 10; *styles* 2; *fr.* 2-*celled capsule; fl. in cymes* . . . . *Saxifraga* 128

(2) *Sta.* 5; *stig.* 3-4; *fr.* 1-*celled capsule; fl. sol., large* . . . *Parnassia* 130

B. *Petals* 0:

(1) *Sta.* 8-10; *styles* 2; *fr.* 1-*celled capsule; fl. min., yell.-gr.* . . . *Chrysosplenium* 129

II. *Shrub:*

Pet. 4-5; *sta.* 4-5; *fr. many-seeded berry* *Ribes* 131

128 **SAXIFRAGA** L. Ls. alter., rarely oppos., fl. term. sol. or in cymes; sep. 5, imbric. (rarely 4), pet. 5 or 0, st. 8-10, styles 2; fr. 2-celled capsule.

698 **Geum** L. *Kidney Saxifrage.* Plantations, &c. 6-12 in. Per. 6-7, hairy, st. slender, ls. leathery, kidney-shaped, cord. at base, cren.; fl. white, with 2 pink dots on each pet., in loose cymes.

Ormiston, Prestonhall, Auchindinny, Hermitage, Kirkliston.

700 **umbrosa** L. *London Pride, None-so-pretty.* Plantations, &c. 6-12 in. Ls. leathery, obov., blunt, cren. suddenly narr. into broad, flat stalk; fl. in loose cyme, pink with darker dots.

Haddington, Lennoxlove, Prestonhall, Auchindinny, Arniston, Colinton, Ratho, Kirkliston, Linlithgow.

701 **Hirculus** L. *Yellow Marsh Saxifrage.* Wet moors. 4-8 in. Per. 7-8, barren; st. prostr.; fl.-st. erect; rad. ls. spoon-shaped, st.-ls. lin. ent.; fl. sol., rather large, yell. dotted with red; sep. blunt, fringed; pet. obov.; capsule rather large.

Pentlands.

702 **aizoides** L. *Yellow Mountain Saxifrage.* Hill strs. 4-6 in. Per. 6-9, st. decumb.; fl.-st. ascend.; ls. ent. lin., fleshy, mucron.; fl. in leafy pan., with downy stalks, bright yell. with red dots—petals do not meet.

Pentland Streams.

703 **tridactylites** L. *Rue-leaved Saxifrage.* Dry sandy pl. 2-5 in. An. 4-7, plant clammy, gland.; st. erect;

ls. wedge-shaped, 3-5 fid., with flat stalk; fl. sol., white, tinged red, small, on long ped. with 2 bracts at base.

Dirleton, Gullane, Longniddry, Cockenzie, Duddingston, Craiglockhart, Linlithgow, Blackness.

706 **granulata** L. *White Meadow Saxifrage.* Grav. mead. 6-12 in. Per. 5-6, root-stock with bulbs; st. erect, slightly leafy; ls. kidney-shaped, lobed, stalked, gland.-downy, st.-ls. nearly sess., 3-5 fid.; fl. in loose cluster, pure white; pet. obov.-obl., long.

Yester, Aberlady, Gosford, Inveresk, Craigmillar, Cramond Island, Dalmeny, Currie, Hopetoun, Philipstoun.

717 **hypnoides** L. *Mossy Saxifrage, Lady's Cushion.* Rocks. 2-12 in. Per. 5-7, barren st. decumb., trailing, fl.-st. erect; ls. 3-5 cleft, fringed, lobes gradually narr. to acute bristle pt., st.-ls. ent.; fl. white, sep., narr., ovate, acute.

Arthur's Seat, Habbie's Howe, Auchindinny, Pentlands, Dalmahoy.

129 CHRYSOSPLENIUM L. Small, creep., succulent, yell.-gr. plant; fl.-st. ascend.; ls. roundish; fl. minute, in term. flat clusters, yell.; pet. 0, sep. 4-5, blunt, sta. 8, styles 2; fr. capsule.

718 **oppositifolium** L. *Common or Opposite-leaved Golden Saxifrage.* Wet shady pl. 2-4 in. Per. 4-7, st. decumb.; branched; ls. oppos., roundish, cord. wavy; lr. ls. shortly stalked; fl. yell., small, sess. in flat term. cluster, surrounded by small sess. yell. ls.

Dunglass, Gifford, Longniddry, Arniston, Roslin, Ratho, Kirkliston, Hopetoun, Carribber.

719 **alternifolium** L. *Alternate-leaved Golden Saxifrage.* Wet shady pl. 2-4 in. Per. 3-7, very like *C. oppositifolium*, but st. simp. or branched only at top; ls. alter., kidney-shaped, lr. ls. hairy, long-stalked.

Dunglass, Roslin, Bilston, Currie, Craigiehall.

130 PARNASSIA.

720 **palustris** L. *Grass-of-Parnassus.* Marshes. 1-8 in. Per. 7-9, pl. smooth; ls. rad., ovate-cord., long-stalked, fl.-st. with clasp, leaf below middle; fl. sol., large (1 in. across), sep. 5, imbric; pet. 5, thick, ivory-white, veined; sta. 5, perf. alter. with 5 imperf. ones (staminodes) in form of fan-shaped scales, fringed with 9-13 white hairs tipped with glob. yell. waxy glands; caps. globose.

Shippath Dean, Bilsdean, Gullane, Longniddry, Penicuik, Habbie's Howe, Pentlands, Ravelrig.

131 RIBES L. Shrubs with alter. palmately lobed ls.; fl. small, in rac. with bracts, or rarely sol.; cal. 4-5 cleft; pet. 4-5 small, scale-like, style 2-4 cleft; fr. berry, many-seeded, crowned with calyx.

721 ***Grossularia** L. *Gooseberry.* Hedges, &c. 2-4 ft. Per. 4-5, st. with 1-3 thorns at base of young branches; ls. rounded, 3-5 lobed, cren., hairy; fl. small, gr., hang singly or in pairs from little tufts of young ls., bracts minute; berry yellowish-gr., hairy.

Dunglass, Longniddry, Arniston, Roslin, Penicuik, Colinton, Corstorphine, Dalmahoy, Carlowrie.

722 **alpinum** L. *Mountain Currant.* Woods. 2-4 ft. Per. 4-5, dioecious; ls. smaller, with 3 acute deeply-toothed lobes, smooth, shining; *rac. erect*, bracts longer than fl.; male rac. dense, many fld., fem. on diff. shrub with 2-5 almost sess. fls.; berry scarlet.

Dunglass, Roslin, Auchindinny, Dalhousie, Habbie's Howe, Penicuik, Cramond, Dalmeny, Hopetoun, Abercorn.

723 ***rubrum** L. *Red Currant.* Woods, &c. 3-5 ft. Per. 4-5, ls. bluntly 5-lobed on rather long stalks, smooth above, downy beneath; rac. mostly hanging, bracts ov., shorter than fl.; fl. small, gr.-white; berry red.

Dunglass, Musselburgh, Arniston, Roslin, Penicuik, Dalkeith, Craigiehall, Corstorphine, Colinton, Dalmahoy.

725 ***nigrum** L. *Black Currant.* Copses, &c. 3-5 ft. Per. 4-5, ls. odorous-gland. beneath, with 3-5 acute toothed lobes, large, coarse, rough; rac. hanging, loose, bracts awl-shaped, shorter than fl.; berry black.

Dunglass, Musselburgh, Arniston, Roslin, Cramond, Craigiehall, Almondside, Kirkliston.

28. CRASSULACEAE.

Stone-crop Family—Herbs with fleshy stems and leaves, growing in dry places; fl. reg., sep. 4-12, pet. 4-12, sta. twice as many as pet.; fr. a ring of follicles.

Key to Genera.

Sep. 4-6, *pet.* 4-6	*Sedum*	134
Sep. and pet. more than 6, *gen.* 10-12 . .	*Sempervirum*	135

134 SEDUM L. Fleshy plant, ls. scattered, sometimes oppos.; fl. star-like, yell., white or purp. in term. cymes or corymbs, sep. and pet. 4-6, gen. 5; sta. twice as many as pet.; fr. ring of follicles, with several seeds.

729 **roseum** Scop. = **Rhodiola rosea** L. *Roseroot.* Rocks. 6-18 in. Per. 5-8, root-stock thick, woody; ls. flat, obov.-acum., toothed in upper half, glauc.; fl. yell. or purplish, in compact cyme, 4-parted, dioecious, male-fl. 8 sta., fem.-fl. 4 carpels.

Habbie's Howe, Pentlands.

730 **Telephium** L. *Orpine, Livelong.* Roadsides. 6-18 in. Per. 7-8, plant glauc.; lr. ls. obl., 2 in., coarsely toothed, narr. into short stalk, upper ls. round at base, sometimes wedge-shaped, fl. in dense, flat-topped cymes, red-purp., 5-parted sta. 10.

(*a*) var. **purpureum** Tausch.—ls. wedge-shaped at base.

Traprain Law, North Berwick, East Linton, Roslin, Bellside.

732 **anglicum** Huds. *English Stonecrop.* Rocks near sea. 3-5 in. An. 6-8, barren st. procumb., fl.-st. erect, ls. alter., rounded on back, ovate, smooth, spurred at base, pan. 2-fid.; fl. white, tinged pink; pet. lanc., very pointed.

Dunbar, Cramond.

733 ***album** L. *White Stonecrop.* Rocks, walls. 3-5 in. Per. 6-7, fl.-st. erect, ls. obl.-lin., flattened above, spread.; pan. much branched; pet. white, lanc, blunt.

North Berwick, Dirleton, Vogrie, Blackford Hill (var. micrantha Bast.), Bo'ness.

734 **acre** L. *Biting Yellow Stonecrop, Wall Pepper.* Rocks, walls. 3-8 in. Per. 6-7, ls. ov., swollen, imbric. on barren shoots, spurred at base; pan. 3-fid, leafy; pet. lanc. acute.

North Berwick, Aberlady, Longniddry, Craigmillar, Blackford, Hopetoun, Kirkliston, Blackness.

736 **rupestre** L. *Yellow Stonecrop.* Rocks. 6-10 in. Per. 6-7, ls. lin.-lanc., flattened, spurred at base, glauc. adpressed on barren st.; fl. in flat-topped cymes with branches 1½-2 in. long; pet. lanc.

Kingsknowe.

738 **reflexum* L. *Large, Crooked Yellow Stonecrop.* Walls, rocks. 6-12 in. Per. 6-7, ls. awl-shaped, lr. ls. recurved, spurred at base, cyme flat-topped; fl. yell., often 6-parted on long peds. with bracts.

Dirleton Castle, Tynehead, Preston, Ravelston.

739 **villosum** L. *Bog Stonecrop.* Marshes. 3-4 in. An. 6-7, ls. lin., flattened above; st. and ls. gland. downy, cyme term., loose; pet. ovate, acute, dull rose with purp. streak.

Shippath Dean, Auchencorth Moor, Boghall Glen, Whelpside, Balerno, Ravelrig, Linlithgow, Knock Hill.

135 *SEMPERVIVUM* L.

740 **tectorum* L. *House-leek.* Roofs, walls. 1-2 ft. Per. 7-8, dense rosettes of fleshy ls. send off shoots from their axils—ls. edged with hairs, mucron., tinged red-purp.; fl. red, sess. in scorpioid cymes; pet. lin., downy on outside, fringed with hairs.

East Linton, Gullane, Tantallon, Colinton, Monkton Hall, Ratho.

29. DROSERACEAE.

Sundew—Herbs with radical rosettes of glandular, insect-catching leaves; fl. reg., sep. 5, pet. 5, sta. 5, styles 2-5, deeply 2-fid.; fr. 1-celled capsule, placent. parietal.

136 DROSERA L. Stip. membr.; fl. in 1-sided cyme, sep. pet., sta. 5, each capsule 1-celled.

741 **rotundifolia** L. *Common Round-leaved Sundew.* Bogs. 3-6 in. Per. 7-8, ls. all rad., round, stalked, cov. with red tentacles, or hairs with large glands secreting a sticky fluid, which helps to digest the imprisoned fly; fl.-st. erect from centre of rosette, slend., leafless, smooth, unrolling into a one-sided cyme of white flowers, anth. white, stig. white.

Aikengall Moss, Swanston, Balerno, Ravelrig, Linlithgow.

30. HALORAGACEAE.

Mare's-tail Family—Water plants with oppos. or whorled ls. and very inconspicuous fls., sep. 2-4 or 0, pet. 2-4 or 0, sta. 1-8, carpels 1-4, stig. sess.; fr. 1-celled nut.

Key to Genera.

I. *Ls. whorled:*		
(1) *Ls. ent., sep.* 2, *pet.* 0, *sta.* 1, *carpel* 1	*Hippuris*	137
(2) *Ls. pinn., sep.* 4, *pet.* 4 *or* 0, *sta.* 2-4-8, *carp.* 4, *monoecious*	*Myriophyllum*	138
II. *Ls. opposite:*		
(1) *Ls. ent., sep.* 0, *pet.* 0, *sta.* 1, *carp.* 4 *monoecious*	*Callitriche*	139

137 HIPPURIS L.

744 **vulgaris** L. *Mare's-tail.* Ponds, &c. 6-24 in. Per. 6-7, smooth water-plant with upper part above water; st. simp. jointed, tapering; ls. 8-12 in whorls, lin. ent., 2 in. long in lower whorls, decreasing to ½ in. in upper ones; fl. minute, in axils of upper ls; fr. tiny, obl., 1-seeded nut.

Gullane, Aberlady, Duddingston Loch.

138 MYRIOPHYLLUM L. Water plant usually wholly submerged, only fl.-spike rising above water; ls. whorled, finely pinn.; fl. monoecious; male-fl. in upper whorls of spike, pet. 4, sta. 8-6-4; fem.-fl. in lower whorls, pet. minute or 0, ovary 4-celled; fr. dividing into 4 tiny nuts.

746 **spicatum** L. *Spiked Water Milfoil.* Ponds, &c. Per. 6-8, ls. 4 in whorl; fl. in leafless spike, erect in bud, bracts very small, ent. in upper, often pinn. in lower part.

Duddingston Loch, Linlithgow Loch.

747 **alterniflorum** D.C. *Alternate-flowered Water Milfoil.* Strs., &c. Per. 6-8, slend. plant; ls. 3 in whorl; male-fl. about 6, on leafless spike, fem.-fl. below, about 3 together, in axill. whorls with longer pinn. bracts.

Gullane, Linlithgow Loch.

139 CALLITRICHE L. Slend. water plant, mostly submerged; ls. oppos., simp., ent., sometimes upper float.—ls. in rosette; fl. monoecious, sol., minute, axill, gen. with 2 white bracts; male-fl. with 1 sta., fem.-fl. with 4-celled ovary and 2 styles; fr. winged, 4-lobed.

748 **vernalis** Koch. = **palustris** L. = **verna** L. *Spring Water Starwort.* Ditches, &c. An. or Per. 5-9, lr.-ls. lin., float-ls. ovate in rosette; fl.—bracts straight, decid.; styles erect, decid.; fr. bluntly keeled on back, convex on side, lobes swollen.

Duddingston, Ratho.

749 **stagnalis** Scop. *Broad-fruited Water Starwort.* Watery pl. An. or Per. 4-9, lr.-ls. lin., float ls. round-obov., in rosette, or 0; fl.-bracts sickle-shaped, persist., styles erect, persist., reflexed in fr.; fr. flattish, lobes slightly winged on back, pale when dry.

Duddingston, Canal, Pentlands.

753 **autumnalis** L. *Autumnal Water Starwort.* An. or Per. 6-10, wholly submerged; ls. all lin., broader at base, dk.-gr.; fl.-bracts 0, styles spread; fr. large, dk.-brown, broadly winged.

Spot Loch, Duddingston Loch, Broxmouth.

31. LYTHRACEAE.

Loosestrife Family—Herbs of river-banks, &c.; ls. gen. oppos.; fl. reg., sep. 4-6, pet. 4-6, sta. twice as many as pet.; ovary 2-4 celled, style 1; fr. many-seeded capsule.

Key to Genera.

Calyx bell-shaped, fl. minute—small water plant .	*Peplis*	140
Calyx tubular, fl. showy, purp.—large land plant .	*Lythrum*	141

140 PEPLIS L.

755 **Portula** L. *Water Purslane.* Wet heathy pl. 3-8 in. An. 7-8, st. creep. ; ls. oppos. obov. ; fl. sol., axill. cal. bell-shaped with 12 teeth (6 broad, 6 awl-shaped, alternating) ; pet. 6, minute or 0 ; sta. 6, style 1, very short ; fr. 2-celled, many-seeded capsule.

Pentlands, Dalmahoy, Linlithgow.

141 LYTHRUM L.

756 **Salicaria** L. *Purple Loosestrife.* Riversides, &c. 2-5 ft. Per. 7-9, st. erect, ang. ; ls. oppos. or in whorls of 3, sess. clasp. (2-3 in.), ent., lanc., cord. ; fl. showy, pink or purp. in long leafy spike ; cal. tubular, with 8-12 teeth, outer awl-shaped, twice as long as inner, short, broad ones ; sta. 12 ; fr. many-seeded capsule.

Binny Woods, Inveresk, Manuel, Grangemouth.

32. ONAGRACEAE.

Willowherb Family—Herbs ; ls. simp., without stipules, fl. gen. in term. spikes or rac. or lower ones axill., sep. 2-4, pet. 2-4 or 0, sta. 2-8, carpels gen. 4, placent. axile ; fr. 4-celled, berry or capsule.

Key to Genera.

I. *Stamens, 8, calyx 4-cleft :*		
(1) *Cal.-segm. free, fl. pink or red ; seeds bearded*	*Epilobium*	142
(2) *Cal.-segm. united below, fl. gen. yell.* .	*Oenothera*	144
II. *Stamens 2, sep. 2, fl. small*	*Circaea*	145

142 EPILOBIUM L. Plant with rhiz. or stolons ; ls. oppos. or alt. ; fl. pink or red in term. rac. ; cal. 4-cleft, decid., pet. 4, sta. 8, style thread-like, stig. club-shaped or 4-lobed. ; fr. capsule, lin., 4-celled, seeds many, bearded.

758 **angustifolium** L. *Rosebay Willowherb.* Ry.-bks., wa. pl. 3-6 ft. Per. 7-8, st. round ; ls. ellip.-lanc., *alter.* ; fl. rose-coloured, irreg. in long term. leafless rac., pet. ent., stig. deeply 4-cleft.

North Berwick, Longniddry, Port Seton, Straiton, Penicuik, Craiglockhart, Colinton (var. brachycarpus), Pentlands Carlowrie, Hopetoun, Humbie Reservoir.

759 **hirsutum** L. *Great Hairy Willowherb.* Str.-sides. 3-5 ft. Per. 7-8, st. round, branched, woolly ; ls. obl.-lanc. oppos. hairy, clasp. toothed ; fl. large, rose, reg. ; pet. deeply notched, stig. 4-cleft ; pod very long, 4-ang., hairy.

Port Seton, Straiton, Duddingston, Braidburn, Blackhall, Gogar, Mid-Calder, Dalmeny, Kirkliston.

760 **parviflorum** Schr. *Small-flowered, Hoary Willowherb.* Wa. pl. 1-2 ft. Per. 7-9, st. nearly simp. round, downy ; ls. lanc. *alter.* upper sess. *lowest* shortly stalked, *oppos.* ; fl. small, pink, buds erect, pet. 2-fid, stig. 4-cleft.

Aberlady, Duddingston, Straiton, Dalkeith, Carlowrie, Drumshoreland.

761 **montanum** L. *Broad Smooth-leaved Willowherb.* Woods, &c. 6-24 in. Per. 6-7, st. slend., downy ; ls. ovate, with rounded base, toothed, shortly stalked, oppos. sometimes in 3's., smooth ; fl. small, pale purp., pet. deeply notched, stig. 4-cleft ; pod slender.

Gullane, King's Park, Comiston, Ratho, Kirkliston.

764 **roseum** Schr. *Pale Smooth-leaved Willowherb.* Wa. pl. 9-24 in. Per. 7-8, st. ang. (2 sharp, 2 blunt), ls. ellip.-lanc. with rounded base, toothed, long-stalked, veins prom. ; fl. in short term. leafy pan., pet. pink, notched ; stig. ent., club-shaped.

North Berwick, Leith, Slateford, Manuel.

765 **tetragonum** Curt. = **adnatum** Griseb. *Square-stalked Willowherb.* Wat. pl. 1-3 ft. Per. 7-8, st. 4-ang., much branched ; ls. lin.-obl. sess. toothed, shining above, mid.-ls. decurrent ; fl. small, pink, in term. leafy rac. ; pet. deeply notched ; stig. ent., club-shaped ; pod very long.

Esk, Duddingston, Water of Leith, Ratho, Manuel, Linlithgow.

766 **obscurum** Schr. *Obscure, Dull Willowherb.* Wet pl. 2-3 ft. Per. 7-8, st. hairy, obscurely 4-ang. ; ls. ov.-lanc., taper. from rounded base (lr.-ls. blunt), dull, remotely toothed ; pet. small, narr., rose-red ; stig. ent.

Lasswade, Bo'ness.

768 **palustre** L. *Marsh Willowherb.* Bogs. 6-18 in. Per. 7-8, st. rooting near base, round, with 2 lines of down ; ls.

narr., lanc. or lin. with wedge-shaped base, sess.; fl. small, pink, in short term. drooping rac.; stig. ent. club-shaped.

Shippath Moor, Duddingston, Borthwick, Pentlands.

144 OENOTHERA L.

772 **biennis* L. *Common Evening Primrose.* Wa. pl. 2-3 ft. Bi. 7-9, st. almost simp., leafy, downy; ls. obl.-lanc., alter. toothed, st.-ls. ellip.; fl. large (2½-3 in.), in term. spike, cal.-tube 4-lobed, pet. 4 broad, spread., sta. 8, stig. 4-lobed; capsule, 4-sided, narr. upwards, seeds without tuft of hair.

Musselburgh, Leith, Craigmillar, Kirkliston, Linlithgow.

145 CIRCAEA L. Slend. creep. plant, ls. oppos. stalked; fl. small in term. rac., calyx, 2-fid with reflexed segm.; pet. 2, sta. 2, style with thick stigma; capsule, glob.-obl.

776 **lutetiana** L. *Enchanter's Nightshade.* Woods. 1-2 ft. Per. 6-8, st. downy, ls. ovate-cord., slightly toothed, downy; bracts 0, cal. hairy, pet. white, notched; sta. pink.; fr. 2-lobed, bristly with hooked hairs, persistent.

Gifford, Gosford, Longniddry, Arniston, Roslin, Auchindinny, Colinton, Dalmeny, Carlowrie, Kirkliston, Carribber.

777 **alpina** L. *Alpine Enchanter's Nightshade.* Shady pl. 6-18 in. Per. 6-8, plant smaller, smooth; ls. cord.-acum. toothed, glossy, petioles flat with membr. wings; bracts small, bristle-like, decid.; fl. small white, pet. 2-fid, cal. smooth; fr. 1-celled, cov. with straight hairs, decid.

Shippath Dean, Yester, Colinton, Meadowbank.

(*b*) **intermedia** Ehrh.—plant larger.

Colinton, Corstorphine Hill.

33. CUCURBITACEAE.

Gourd Family—Climbing herb, with leaf tendrils; ls. palmately lobed; fl. dioecious, greenish, sep. 5 united, pet. 5 united, sta. 3, carpels 3—fr. a berry.

146 BRYONIA L.

778 **dioica** Jacq. *White Bryony.* Hedges. Per. 5-9, plant thickly cov. with white hairs, tendrils unbranched; ls. large, light green, alter., palmately 5-lobed, rough; fl. white with green veins, dioecious, male-fl. several together in stalked rac., yellowish white with broad bell-shaped cor. (½ in.), fem.-fl. much smaller, gen. 2 together, almost wheel-shaped, with glob. ovary; fr. berries, red or orange.

Gosford.

34. UMBELLIFERAE.

Parsley Family—Herbs with divided ls., more or less sheathing at base; fl. small, reg. in umbels with 1 or more bracts as involucre; sep. 5, minute, combined with ovary; pet. 5, gen. inflexed at tip, sta. 5, styles 2, ovary, inferior, 2-celled; fr. cremocarp (or schizocarp) of 2 carpels (or mericarps) adhering by inner, flattened faces (commissures) to an axis (or carpophore) from which they separate from below, upwards. Each carpel has 5 primary, and often 4 secondary "ribs" or ridges, with linear oil-sacs (vittae) or "stripes" in the spaces between, and sometimes under them.

Key to Genera.

I. *Umbel simple:*
- A. *Fr. lat. compressed, smooth, ribs faint, stripes 0; ls. simp., shield-like* . . *Hydrocotyle* 147
- B. *Fr. dorsally compressed, ovoid; cal. 5 leaf-like teeth; ls. palmate:*
  - 1. *Fr. with chaffy scales, ribs 0, stripes 0, plant thistle-like* . . . *Eryngium* 148
  - 2. *Fr. with 5 toothed ribs, stripes 0, invol. bracts large, tinted* . . *Astrantia* 149
  - 3. *Fr. cov. hooked prickles, ribs 0, stripes many* . . . . *Sanicula* 150

II. *Umbel compound:*
- A. *Fr. lat. compressed, short:*
  - 1. *Without beak:*
    - (*a*) *Calyx-teeth prominent:*
      - (1) *Fr. ribs broad, faint, stripes sol.; ls. 3-nate* . . . . . *Cicuta* 157

(2) *Fr. ribs slend., blunt; stripes, sev.; ls. pinn.* . . . . *Sium* 161
(b) *Calyx-teeth inconspicuous, or absent:*
(1) *Fr. obl. ribs thick, wavy; stripes 0; st. glauc. spotted, odour mousy* *Conium* 152
(2) *Fr. ovoid, black, ribs 3 prom., stripes many; petiole with large membr. sheath; ls. 3-nate* . . *Smyrnium* 153
(3) *Fr. ovoid, ribs prom., stripes sol.; invol. bracts 0; ls. pinn.* . . *Apium* 156
(4) *Fr. obl., ribs slend., stripes sol.; base of style depressed* . . *Carum* 158
(5) *Fr. obl., ribs slend., stripes 0; base of style conical; ls. 3-nate* . *Aegopodium* 162
(6) *Fr. ovoid, ribs slend., stripes many; base of style swollen* . *Pimpinella* 163
(7) *Fr. obl., ribs slend., faint; stripes sev.; base of style conical* . . *Conopodium* 164
(8) *Fr. narr., ribs keeled, stripes 0; ls. splashed white, aromatic* . *Myrrhis* 165
(9) *Fr. lin., ribs blunt, stripes sol.; st. rough, spotted, swollen below joints* . . . . . *Chaerophyllum* 166
2. *With beak:*
(1) *Fr. lin., rough, ribs blunt, stripes 0, beak v. long; lft. lin.* . . . *Scandix* 167
(2) *Fr. ribs 0, taper. to slend. 5-ribbed beak, stripes 0* . . . . . *Anthriscus* 168
B. *Fruit globose or ovoid, lateral ribs distinct:*
1. *Stripes solitary:*
(1) *Fr. obl., ribs bluntly keeled, base of style conical, lft. lin.* . . . . *Foeniculum* 170
(2) *Fr. narr., corky, ribs bluntly keeled, tipped cal.-teeth and long styles* . *Oenanthe* 172
(3) *Fr. ovoid, ribs thick, sharply keeled, tipped short reflex. styles; long bracteoles outside umbels* . . . . *Aethusa* 173
C. *Fruit dorsally compressed:*
1. *Calyx indistinct or absent; fr. almost winged:*
(1) *Fr. obl., ribs sharp, stripes 2-3, faint; lft. bristle-like* . . . . *Meum* 176
(2) *Fr. ellip., ribs sharp, stripes many; lft. large, broad* . . . . . *Ligusticum* 177

(3) *Fr. flat., ribs 3 slend.—dors. raised, lat. dilated,—stripes sol.; lft. large* *Angelica* 179
2. *Calyx distinctly toothed or lobed; fruit winged:*
(1) *Fr. flat, 3 prom. dors. ribs, lat. ribs dilated into wings; stripes, sol., long, even* . . . . . *Peucedanum* 181
(2) *Fr. broad, ribs faint, slend., lat. nr. edge, winged; stripes lin., sol., short, club-shaped* . . . *Heracleum* 182
D. *Fruit prickly, secondary ribs more prom., stripes sol:*
(1) *Fr. ovoid, dorsally compressed; prickly on ribs, winged; lft. lin.* . *Daucus* 185
(2) *Fr. ovoid, laterally compressed; covered with prickles, bristles or warts* . . . . . *Caucalis* 186

147 HYDROCOTYLE L.

779 **vulgaris** L. *Marsh Pennywort.* Boggy pl., creep. Per. 5-8, st. root at joints, slend.; ls. simp., round, peltate, cren. glossy; umbel of 5 minute white fls., ped. very short; fr. small, flat., ribs faint, stripes 0.

Gullane, Aberlady, Duddingston.

148 ERYNGIUM L.

780 **maritimum** L. *Sea Holly.* Sandy coast. 1-2 ft. Bi. 7-8, plant thistle-like; ls. stiff, broad, wavy-lobed, spinous, glauc.; lr.-ls. stalked, upper ls. clasp; blue fl. in simp. umbel, or nearly glob. head; invol. 5-8 ls., like others but narr., bracteoles chaffy, with 3 spines; fr. ov., ribs 0, stripes 0.

Dunbar.

149 *ASTRANTIA* L.

782 **major* L. *Astrantia.* Woods. 1-3 ft. Per. 6-8, ls. mostly rad. palmate, lobes ov.-lanc., toothed; gen. umbel very irreg. with invol. of lobed, toothed bracts, partial umbel with involucel of 15-20 lanc. ptd. ent. bracteoles as long as, or longer than, fls., gr.-white, tinged pink; fl. very small, monoecious; cal. 5-toothed; pet. 5, thread-like, inflexed; fr. ovoid, ribs toothed, stripes 0.

Carlowrie, Carribber.

150 SANICULA L.

783 **europaea** L. *Wood Sanicle.* Woods. 9-24 in. Per. 6-7, ls. all rad. stalked, 3-5 palm-fid., segm. lobed, toothed, smooth; umbel of 3 short branches, with 1 lower down stem; invol.-bracts 3-fid; pet. minute, hidden; fr. ovoid burr. ribs 0, stripes many.

Haddington, Aberlady, Port Seton, Arniston, Dryden, Colinton, Dalmeny, Hopetoun, Almondell, Carribber.

152 CONIUM L.

785 **maculatum** L. *Hemlock.* Hedges, &c. 3-8 ft. Bi. 6-7, st. glauc., furrowed, purp.-spotted; ls. large, 3-pinn., segm. deeply pinnfid., tipped with minute white pt.; umbels 10-15 rays, bracts short, lanc. bracteoles 3 on outside only; fr. obl., ribs thick, wavy, stripes 0—odour mousy.

Dunbar, Tantallon, North Berwick, Gullane, Crichtoun, King's Park, Gorebridge.

153 SMYRNIUM L.

786 ***Olusatrum** L. *Alexanders.* Wa. pl. nr. ruined castles on coast. 3-4 ft. Bi. 4-6, st. stout, furrowed; ls. broad, *glossy, yell.-gr.*, with large membr. sheathing petioles, upper ls. 3-nate, lr.-ls. 3-4-ternate, segm. broad, 3-lobed or toothed; umbels 8-12 rays, fl. gr-yell; fr. large, black, ribs 3 prom., stripes many.

Dunglass Dean, Dirleton, Crichtoun, Musselburgh, Craigmillar.

156 APIUM L. = **HELOSCIADUM** Koch. Plant smooth; ls. pinn. or 3-nate; umbels often in forks of stem, nearly sess.; invol.-bracts gen. 0 or very few; pet. ent., small white, with inflexed pt.; fr. ovoid, ribs prom., stripes sol.

792 **graveolens** L. *Wild Celery, Smallage.* Wa. pl. 1-3 ft. Per. 6-8, st. furr., leafy; ls. pinn., lobes 3-fid, segm. of rad. ls. round, lobed; of upper ls. wedge-shaped, notched; umbels nearly sess., 3-6 rays, bracteoles 0; fr. very small.

Musselburgh, Leith, Slateford.

793 **nodiflorum** Reichb. fil. *Marshwort.* Wat. pl. 1-3 ft. Per. 7-8, st. procumb., rooting at base, hollow; ls. pinn., segm. lanc. toothed; umbels nearly sess., oppos. the ls., 5-6-rayed, unequal; bracteoles many, membr.

Gullane, Aberlady, Duddingston, Braids, Almondell, Drumshoreland.

794 **repens** Reichb. *Creeping Marshwort.* Muddy pl. 6-12 in. Per. 7-8, plant smaller, creeping in half-dry ditches; umbels longer stalked, invol.-bracts 3-7.

Dirleton, Gullane, Duddingston.

795 **inundatum** Reichb. fil. *Least Marshwort.* Ponds, &c. Per. 6-7, st. creep., often submerged, lr.-ls. multifid., hair-like, float-ls. pinn., segm. wedge-shaped, 3-fid; umbel very small, of 2-4 unequal rays, oppos. the ls., invol. 0, bracteoles 2-3.

Gullane, Braids, Threipmuir, Ravelrig, Linlithgow Loch.

158 CARUM L. Ls. pinn., umbels comp., invol.-bracts 0 or sev., pet. with inflexed pt.; fr. obl., ribs slend., stripes sol., base of style depressed.

798 **Petroselinum* B.&H. = **Petroselinum** *sativum* Hoffm. *Parsley.* Banks, &c. 9-18 in. Bi. 6-8, ls. triang., 2-pinn., glossy, aromatic, segm. of lr.-ls. stalked, ovate, 3-fid, segm. of upper ls. narr.-lin. ent.; umbels stalked, 15-20 rays, fl. small, gr.-yell.

Leith, Craigmillar, Gogar, Ratho, Linlithgow.

800 ***Carvi** L. *Caraway.* Wa. pl. 1-2 ft. Bi. 6-7, ls. narr., triang., 2-pinn. with long sheathing st., lf. segm. lin.; umbel 8-10 rays, invol.-bracts 0 or 1-2; fr. lin.-obl. curved, ribs prom.—"caraway seeds."

Leith, Roslin, Abercorn.

161 SIUM L. Ls. pinn., umbels with leafy invol.; pet. white with inflexed pt.; fr. broad, ovoid, lat. compressed, ribs slend., blunt, stripes several.

804 **latifolium** L. *Broad-leaved Water Parsnip.* Riversides. 3-4 ft. Per. 7-8, st. stout, furrowed; ls. pinn., lft.

obl.-lanc., equally toothed (lr.-ls. 6-20 pairs), umbel term. 15-20 rays, bracts and bracteoles, large, leafy; style thread-like.

Kinneil.

805 **erectum** Huds. = **angustifolium** L. *Narrow-leaved Water Parsnip.* Ditches, &c. 1-3 ft. Per. 7-8, ls. smaller, lr.-ls. 8-10 pairs; lfts. irreg. sharply toothed, ovate; umbels lat., many, stalked, 8-15 rays, style swollen at base.

Longniddry, Duddingston.

162 AEGOPODIUM L.

806 ***Podagraria** L. *Bishopweed, Goutweed, Goatweed, Ashweed, Herb Gerard.* Wa. pl. 1-2 ft. Per. 6-8, plant coarse; st. grooved; ls. twice 3-nate, rad.-ls. long-stalked, segm. ov.-lanc., sharply toothed; umbels 12-20 rays, invol.-bracts 0; pet. white, broad, notched with inflexed pt., base of style conical; fr. obl., ribs slend., stripes 0.

Dunbar, Haddington, Longniddry, Arthur's Seat, Bonaly, Currie, Dalmeny, Carlowrie, Bo'ness.

163 PIMPINELLA L. Ls. pinn.; umbels without invol.; pet. broad, notched, with inflexed pt., base of style swollen; fr. ovoid, ribs slend., stripes many.

807 **Saxifraga** L. *Small Burnet Saxifrage.* Dry past. 1-2 ft. Per. 7-9, st. round; ls. pinn., lr.-ls. long-stalked, segm. sess. 7-9, nearly round, sharply toothed; upper-lf.-segm. narr.-lin.; umbel term. slend., 10-15 rays, fl. white.

Tantallon (var. poterifolia), Gifford, Berwick Law, Aberlady, King's Park, Salisbury Crags (var. dissecta with), Cramond, Kirkliston, Linlithgow, Carribber.

808 **major** Huds. = **magna** L. *Large Burnet Saxifrage.* Woods, &c. 2-4 ft. Per. 7-9, plant stouter and larger than *P. Saxifraga*; st. ang., striate; lfts. all ovate, toothed, term. segm. 3-fid, rad. *lfts.* stalked; umbels large; fl. pink or white; fr. large.

Ravelrig, Linlithgow.

164 CONOPODIUM Koch.

809 **majus** Loret. = **denudatum** Koch = **Bunium flexuosum** With. *Earth-nut, Pig-nut.* Past., &c. 1-3 ft. Per. 5-6, rt.-stock glob. tuber ("nut"); st. slend. flex.; rad. ls. pinn., segm. narr., disappear very soon; st. leafless at base, upper-ls. few, pinn., segm. lin., central segm. much longer; umbel term. 6-10 rays, base of style conical; fr. obl.-ov., ribs and stripes faint.

Dunbar, Aberlady, Fala, Roslin, Swanston, Lymphoy, Cramond, Dalmeny, Carlowrie.

165 MYRRHIS Scop.

810 ***Odorata** Scop. *Sweet Cicely.* Past., &c. 2-3 ft. Per. 5-6, st. stout; ls. large, thin, hairy, *blotched with white*, 3-pinn. toothed; umbel term. 8-10 rays, gen. invol. 0, bracteoles lanc.-acum., whitish; fl. white; fr. (1 in.) narr.-obl., ribs prom. keeled, stripes 0—aromatic.

Gullane, Prestonhall, Musselburgh, Swanston, Gogar, Cramond, Carriden, Hopetoun, Niddry Castle.

166 CHAEROPHYLLUM L.

811 **temulem** L. *Rough Chervil.* Hedges, &c. 1-4 ft. Bi. 6-7, st. rough, with short deflexed hairs, spotted dk.-red, and swollen below joints; ls. 2-pinn., hairy (often dk.-red in autumn), segm. wedge-shaped, toothed; umbel without gen. invol., bracteoles broad-lanc., fl. white, outer pet. larger; fr. lin., ribs blunt, stripes sol.

North Berwick, Haddington, Longniddry, Crichtoun, Swanston, Ratho, South Queensferry, Linlithgow, Carribber.

167 SCANDIX L.

813 **Pecten-Veneris** L. *Shepherd's Needle.* Wa. pl. 4-16 in. An. 6-9, ls. 2-3, pinn., segm. short, lin., light gr.; umbel 2-3 rays without gen. invol., bracteoles several, 2-3-lobed, fl. almost sess., small, white, with few larger, outer, pets.; fr. with very long beak (1-2 in.), lin., rough, ribs blunt, stripes 0.

Dirleton, Portobello, Dalhousie, Leith, Slateford, South Queensferry, Kirliston, Linlithgow.

168 ANTHRISCUS Bernh. = **CHAEREFOLIUM** Haller = **CEREFOLIUM** Bess. Ls. 2-3-pinn., segm. pinnfid., toothed, hairy; umbel without invol.-bracts, bacteoles few; fl. white, small; fr. obl., taper. to short 5-ribbed beak, stripes 0.

814 **vulgaris** Bernh. = **scandix** Beck. = **Chaerophyllum Anthriscus** Lam. *Beaked Parsley.* Dry pl. 1-3 ft. Bi. 5-6, st. smooth, ls. 3-pinn., segm. pinnfid., blunt, slightly hairy; umbel lat. shortly stalked, 3-7 rays; fr. with hooked bristles, beak short, smooth.

Haddington, Longniddry, Seton Mains, Musselburgh, Craigmillar, Currie, Dalmeny, Linlithgow.

815 **sylvestris** Hoffm. = **Chaerophyllum sylvestre** L. *Keck, Wild Chervil.* Hedges, &c. 1-4 ft. Per. 4-6, st. hairy below, swollen below joints, grooved, hollow; ls. 2-pinn., segm. pinnfid. ptd., coarsely toothed, hairy, lr.-ls. long-stalked; umbels term. long-stalked, 8-10 rays; fr. smooth, shining, narrowing to tip.

North Berwick, Longniddry, Port Seton, Inveresk, Craigmillar, Ratho, Carlowrie, Hopetoun, Carribber.

170 FOENICULUM Hill.

818 **vulgare** Mill = **officinale** All. *Fennel.* Wa. pl. 3-5 ft. Per. 7-8, ls. dk.-gr., 3-4-pinn., segm. hairlike, long, grooved; petiole sheath with white edge; umbel large, term. without involucres 15-20 rays, fl. yell., glauc.; base of style conical; fr. obl., ribs prom., blunt, keeled, stripes conspicuous.

Craigmillar, Roslin, Comiston.

172 OENANTHE L. Ls. 1-3-pinn., smooth; umbel large, invol.-bracts small, narr.; fl. white, outer mostly male, larger; pet. notched, with inflexed pt.; fr. ovate to narr., corky, tipped with calyx-teeth and long style, ribs bluntly keeled, stripes sol.

823 **Lachenalii** Gmel. *Parsley Water-Dropwort.* Salt marshes. 1-4 ft. Per. 6-8, rad.-ls. 2-pinn., segm. ent. obl., bluntly lobed, soon wither., upper-lf.-segm. lin. acute; umbel 8-15 short rays; fr. very small, contracted at top.

Dunbar, Dirleton, Carriden.

824 **crocata** L. *Hemlock Water-Dropwort.* Marshy pl. 2-5 ft. Per. 7-8, root of large poisonous tubers; ls. 3-pinn. sheathing petioles, segm. glossy, wedge-shaped, stalked, deeply cut; umbel long-stalked, 15-20 rays; fr. ent., narr.-obl., ribs corky.

Woodhall Dean, Aberlady, Longniddry, Dalmeny, Carlowrie, South Queensferry.

173 AETHUSA L.

827 **Cynapium** L. *Fool's Parsley.* Cult. gr., wa. pl. 6-24 in. An. 7-8, st. forked, leafy; ls. dk.-gr., smooth, 2-3-pinn.; segm. wedge-shaped, lanc., decurrent, glossy; umbel long-stalked, 8-12 rays, invol.-bracts 0, *bracteoles* 3, *long lin. droop. from outside of umbel;* fl. white; fr. ovoid, ribs thick, sharply keeled, stripes sol., tipped with short reflexed styles—strong smell when bruised.

Longniddry, Duddingston, Murrayfield, Slateford, Linlithgow, Ecclesmachan.

176 MEUM Hill.

830 **Athamanticum** Jacq. *Bald-money, Spignel.* Hill past. 6-18 in. Per. 6-7, ls. 2-pinn., segm. crowded, bristle-like; umbel. term. 10-15 rays.; invol.-bracts lin.; fl. yellowish; fr. obl., dorsally compressed, ribs sharp, stripes 2-3, faint.

Penicuik, Linlithgow.

177 LIGUSTICUM L. = **HOLOSCIAS** Fr.

831 **scoticum** L. *Lovage.* Rocks nr. sea. 9-36 in. Per. 7-8, st. smooth, thick, hollow; ls. mostly rad., dk.-gr., glossy, twice 3-nate, stalked; segm. large, broad, toothed, slightly fleshy, upper ls. less divided, with short stalks; umbel 12-20 rays, invol.-bracts lin.-lanc., fl. pk.-white; fr. ellip., dorsally compressed, ribs sharp, stripes many.

Gullane, Aberlady, Longniddry, Cramond to Dalmeny.

179 ANGELICA L.

833 **sylvestris** L. *Angelica.* Moist pl. 2-4 ft. Per. 7-8, st. furrowed, purplish; ls. large, 2-pinn., segm. large, ov.

lanc., sharply toothed, umbel large, term. 30-40 rays; fl. pk.-white; fr. flat, ribs 3, slend.—dorsal one raised, marginal dilated into broad wings, stripes sol.

Dunglass, Gifford, Longniddry, Roslin, Cramond, Bavelaw, Dalmeny, South Queensferry, Carribber.

181 PEUCEDANUM L. Ls. pinn. or 3-nate; umbel many rayed, fl. yell. or white, pet.-ent. obov. with inflexed pt.; cal.-teeth small; fr. dorsally compressed, flat with 3 prom. ribs, and 2 lat. ribs dilated into wings; stripes sol., long.

837 **Ostruthium* Koch. *Masterwort.* Moist mead. 2-3 ft. Per. 6-7, st. stout, round, furrowed, hollow; ls. twice 3-nate, long-stalked, sheaths very large; lft. few, large, broad ovate, cut, toothed; umbel large, term. 40-50 rays, gen. invol. 0, bracteoles few, small; fl. white; fr. nearly round, flat.

Belhaven.

838 ***sativum** B.&H. = **Pastinaca sativa** L. *Wild Parsnip.* Roadsides. 2-4 ft. Per. 7-8, st. ang., furrowed; ls. pinn., glossy above, downy beneath; lft. narr., wedge-shaped at base, ov. toothed; umbel 8-12 rays; fl. bright yell., invol.-bracts 0; fr. oval, flat.

North Berwick, Ford, Craigmillar Castle, Leith.

182 HERACLEUM L.

839 **Sphondylium** L. *Hogweed, Cow-Parsnip.* Wa. pl. 4-5 ft. Bi. 7-8, very coarse plant, rough with coarse, short, stiff hairs; st. ribbed; ls. large, pinn. irreg. cut, with wide sheaths, segm. broad, lobed, toothed; umbel large, 20 rays, outer pet. much larger than others; fr. broad, ribs faint, slend., lat. as wings, stripes short, club-shaped.

East Linton, Haddington, Winton, Eskbank, Blackford, Barnton, Dalmeny, Linlithgow, Bo'ness.

(*b*) **angustifolium** Huds. *Narrow-leaved Hogweed.*

Prestonpans, Craigmillar, Blackford Hill, King's Park, Kirkliston.

185 DAUCUS L.

842 **Carota** L. *Wild Carrot.* Past., &c. 1-2 ft. Bi. 6-8, st. hairy; lr.-ls. 2-pinn., segm. pinnfid., lanc. or lin., upper

lf.-segm. narr.; umbel. term., rays crowded—inner very short, outer much longer, closing over in fr.; invol.-bracts with 3-5 long, lin. segm. fl. white; fr. ovoid, dorsally compressed, winged, prickly on ribs, stripes sol.

Tyne, Saltoun, Pencaitland, Musselburgh, New Hailes, King's Park, Dalhousie, Granton.

186 CAUCALIS L. Ls. 1-3 pinn.; umbel few-rayed, bracts few or 0, bracteoles many; outer pet. gen. larger; fr. ovoid, cov. with prickles, bristles or warts, secondary ribs prom., stripes sol.

844 *latifolia* L. *Great Bur-Parsley.* Wa. pl. 6-18 in. An. 6-7, st. rough; ls. pinn., segm. obl.-lanc., pinnfid., toothed; umbel 2-3 rays, invol.-bracts broad, thin; fl. white or pk.; fr. with recurved prickles on secondary ribs.

Musselburgh, Leith, Slateford, Kirkliston.

845 **daucoides* L. *Bur-Parsley.* Wa. pl. 6-18 in. An. 6-7, st. furrowed, hairy at joints; ls. 2-pinn., segm. pinnfid., narr.; umbel 3-4 rays; fl. white or pink, invol.-bract., lin.; fr. with long smooth hooked prickles on secondary ribs.

Gorebridge, Leith, Slateford.

846 **arvensis** Huds. = **Torilis infesta** Spreng. *Spreading Hedge Parsley.* Cornfields, &c. 4-12 in. An. 6-9, hairy, much-branched; ls. 2-pinn., segm. ovate-lanc., toothed; umbel long-stalked term. 2-8 rays, invol.-bract 1 or 0; fl. white; fr. cov. with hooked bristles.

Dunbar, Levenhall, Leith, Slateford.

847 **Anthriscus** Hads. = **Torilis Anthriscus** Gmel. *Hedge Parsley.* Roadsides. 2-3 ft. An. 7-9, st. slend., wiry; ls. 1-2-pinn., segm. lanc. pinnfid, coarsely toothed, lr.-lfts. on each lf. stalked and distant; umbel term. stalked, 3-7 rays, invol.-bracts several, bristle-like; fl. pink or white; fr. cov. with incurved bristles.

Gullane, Aberlady, Levenhall, Balerno, Mid-Calder, Kirkliston.

848 **nodosa** Scop. = **Torilis nodosa** L. *Knotted Hedge Parsley.* Dry banks. 6-18 in. An. 5-7, *st. procumb.*; ls. 2-pinn., segm. small, narr. ptd.; *umbel. lat., sess.*, oppos. the

ls., rays 2-3, very short, often a cluster; fl. white; fr. small, with *hooked bristles on outside, and warts on inner side.*

Gullane, Aberlady, Arthur's Seat, Leith, Granton, Linlithgow.

35. ARALIACEAE.

Ivy—Shrubby root-climber on trees, &c.; ls. evergreen; fl. in simple umbel, sep. 5, pet. 5, sta. 5, carpels 5; fr. a 5-seeded berry.

187 HEDERA L.

849 **Helix** L. *Ivy.* Trees, walls, &c. Per. 10-11, ls. leathery dark, evergreen, glossy, veined, 5-lobed, variable; ls. on flowering branches entire; umbels on upper free branches, simp.; fl. yell.-gr.; fr. smooth, black berry.

Dunbar, Haddington, Longniddry, Arniston, Glencorse, Currie, Carlowrie, Dundas, Abercorn.

(2) GAMOPETALAE.

37. CAPRIFOLIACEAE.

Elder or Honeysuckle Family—Shrubs or herbs with oppos. ls.; fl. reg. or irreg., cal. 3-5 lobed, pet. 3-5 united, sta. 4-10, carpels 3-5, ovary 1-5-celled, stig. 1-3; fr. usually fleshy, berry-like.

Key to Genera.

I. *Corolla rotate or nearly so:*		
A. *Herbs; ls. 3-nate*	*Adoxa*	189
B. *Shrubs or trees:*		
(1) *Ls. pinn.; stig. 3 sess.*	*Sambucus*	190
(2) *Ls. simp.; stig. 3 sess.*	*Viburnum*	191
II. *Corolla campanulate, st. creep., stig. 1, sta. 4*	*Linnaea*	192
III. *Corolla tubular, irreg., 5-cleft, stig. 1, sta. 5*	*Lonicera*	193

189 ADOXA L.

852 **Moschatellina** L. *Tuberous Moschatel.* Damp woods, &c. 3-6 in. Per. 4-5, plant smooth, light-gr.; rad. ls. stalked 1-3 times 3-nate with broad, deeply 3-lobed segm.; fl.-st. rad. with 1 pair 3-nate ls.; fl. pale-gr. in small glob. head, 4 in whorl and 1 term. (often only 4-parted), corolla rotate; sta. forked; fr. green berry.

Dunglass, Saltoun, Gifford, Dalkeith, Polton, Roslin, Hermitage, Corstorphine, Dalmahoy, Newbridge, Manuel.

190 SAMBUCUS L. Shrub or small tree; ls. oppos. pinn.; fl. in large flat cymes, small, white; cal. 5-toothed, cor. rotate, tube very short; fr. a berry-like drupe with 8 (or 4) 1-seeded stones.

853 **nigra** L. *Common Elder.* Copses, &c. 8-20 ft. Tree, 6-7, st. full of "pith"; ls. oppos. pinn. segm. 5-7 ovate, ptd., sharply toothed; fl. small, creamy, in flat cymes 5-6 in. broad, several times branched; bracts very minute; fr. black.

Haddington, Gosford, Longniddry, Arniston, Craigmillar, Slateford, Kirkliston, Abercorn, Linlithgow.

854 ***Ebulus** L. *Dwarf Elder, Danewort.* Wa. pl. 2-3 ft. Per. 7-8, st. gr., "pithy"; lf.-segm. 7-11, lanc. with small one on each side of petiole, like stip.; cyme smaller, flat, 3 main branches; fl. sweet-scent., white or tipped pink; fr. black.

Pressmennan, Mackbiehill, Bo'ness.

191 VIBURNUM L. Shrubs or trees; ls. simp., ent. or palmately lobed; fl. in term. cymes, corolla rotate, tube short, creamy white; sta. 5; fr. 1-seeded berry.

855 **Opulus** L. *Wild Guelder-rose.* Wet woods. 6-10 ft. Per. 6-7, shrub; ls. smooth; stip. 3-lobed, acum.; outer fls. of cyme much enlarged, neuter; fr. glob. transluc. red berry.

Shippath Dean, Yester, Gosford, Dalkeith, Arniston, Roslin, Dryden, Kirkliston, Linlithgow.

856 **Lantana** L. *Wayfaring Tree.* Dry hedgerows. 8-20 ft. Per. 5-6, young shoots and ls. thickly cov. with mealy down; ls. ellip., cord. toothed, velvety above, mealy beneath; fls. all small, perfect; fr. obl. black berry.

Dunglass, Prestonhall, Arniston, Dryden, Roslin, Craiglockhart, Colinton, Ravelrig, Gogar, Kirkliston.

192 LINNAEA L.

857 **borealis** L. *Linnaea.* Heathy woods. 3-8 in. Per. 7-8, st. creep.; ls. oppos. small, ovate, slightly toothed at tip, thick; fl.-branch erect, with 2-3 pairs ls. and 2 droop. fls. on slend. pedicels with bracts beneath; fl. bell-shaped, pink outside, darker within, fragrant, ovary glob., hairy; fr. dry, 3-celled ("seldom formed in Britain").

Bavelaw Moor.

193 LONICERA L. Shrubs twining or erect.; ls. oppos. ent. ovate or obl., sometimes united; fl. yell. or red, 2 or more together in term. or axill. heads, cor. funnel-shaped, 2-lipped; sta. 5; fr. small red berry.

858 ***Caprifolium** L. *Perfoliate Honeysuckle.* Woods, &c. Per. 5-6, climb. shrub, smooth; upper pair of ls. united into broadly-rounded perfoliate leaf; fl. long, in term. *sess.* hd., fragrant.

East Linton, Colinton, Craiglockhart, Corstorphine, Balerno, Dalmeny, Linlithgow.

859 **Periclymenum** L. *Woodbine, Common Honeysuckle.* Hedges, &c., climb. shrub. Per. 6-9, ls. downy beneath, upper ls. rounded, sess., but not united; fl. long in term. *stalked* hd., very fragrant.

Dunbar, Pressmennan, Arniston, Roslin, Dryden, Kirkliston, Abercorn, Carribber.

860 **Xylosteum* L *Upright Fly Honeysuckle.* Plantations, &c. 3-5 ft. Per. 5-6, erect shrub., pale gr., downy; ls. ovate, ent. stalked; fl. small, yell.-white, downy, scentless, 2 together on axill. ped., with 2 small bracts close beneath; fr. scarlet berry.

Tantallon, North Berwick, Prestonhall, Roslin, Slateford, Colinton, South Queensferry.

38. RUBIACEAE.

Bedstraw Family—Herbs with apparently whorled ls. and leafy stipules; fl. reg., small, cal. ent. or 4-6 toothed, cor. 4-6 lobed, sta. 4-5, stig. 2, ovary 2-celled; fr. small, separ. into 2 1-seeded carpels.

Key to Genera.

I. *Corolla wheel-shaped (rotate), 4-cleft, cal. ent.* .	*Galium*	195
II. *Corolla funnel-shaped, 4-cleft:*		
Calyx ent., minute	*Asperula*	196
Calyx teeth 6, crowning fr.	*Sherardia*	197

195 GALIUM L. Herbs, weak; st. 4-ang.; ls. sess., 4-6-8 in whorl (2 oppos. only are real ls. with buds in their axils, the others are stipules); fl. small, white or yell. in axill. or term. 3-branched pan. or cluster; cor. wheel-shaped, 4-cleft, tube minute; fr. small, dry, 2-lobed.

862 **boreale** L. *Cross-leaved Northern Bedstraw.* Moist rocky pl. 6-24 in. Per. 6-8, st. erect, stiff; ls. 4 in whorl, lanc., smooth; fl. white in compact. pan.; fr. cov. with hooked bristles.

Hopetoun.

863 **Cruciata** Scop. *Crosswort, Mugwort.* Hedgerows. 6-18 in. Per. 4-6, ls. ovate, hairy, 4 in whorl; fl. yell., 8 in axill. whorls, lat.-fl. mostly male; fr. smooth on deflexed stalk.

North Berwick, Gifford, Longniddry, Arniston, Roslin, Ratho, Kirkliston, Hopetoun, Manuel.

864 **verum** L. *Lady's Bedstraw, Cheese-Rennet.* Past., &c. 1-2 ft. Per. 6-9, plant smooth; st. much branched at base; ls. lin. 8 in whorl, grooved above, downy beneath, with rolled-back gland. edges; fl. very small, yell., in dense obl. term. pan.; fr. smooth.

Dunbar, Gullane, Longniddry, Swanston, Balerno, Hallyards, Kirknewton, Carlowrie, Abercorn.

865 **erectum** Huds. *Upright Bedstraw.* Past., &c. 1-2 ft. Per. 6-8, st. erect; ls. 6-8 in whorl, lin.-lanc., mucron., edges rough with forward-pointing prickles; fl. white in pan. of slend. branches; fr. smooth.

Portobello, Ratho, Dalmahoy.

866 **Mollugo** L. *Great Hedge Bedstraw.* Hedges. 1-4 ft. Per. 7-9, st. thick at joints; ls. 8 in whorl, obov.-lanc.,

veined, mucron., edges rough with forward-pointing prickles; pan. large, spread., lr.-branches horizontal or depressed; fl. white; corolla lobes with little pt.; fr. smooth.

Tyne, East Linton, Dirleton, Newbattle, Dalhousie, Braids, Dreghorn, Corstorphine, Balerno (var. Bakeri Syme), Kirkliston.

867 **saxatile** L. = **hercynicum** Weig. *Heath Bedstraw.* Heathy pl. 4-8 in. Per. 6-8, st. prostr., tufted; ls. 6 in whorl, obov., suddenly narr. to pt., mucron., smooth; fl. white, small; fr. granular on erect stalk.

North Berwick, Gullane, Aberlady, Fala, Hawthornden, Comiston, Rullion Green, Balerno, Dalmeny, Kirkliston.

868 **sylvestre** Poll. = **pumilum** Murr. = **umbellatum** Lam. = **pusillum** Sm. = **asperum** Schr., *Least Mountain Bedstraw.* Hills, dry past. 6-10 in. Per. 6-8, ls. 6-8 in whorl, lin.-lanc., mucron., edges rolled back, lower ones with marginal hairs; pan. few-fld., pet. white, acute; fr. dk.-brown, finely granular.

Habbie's Howe, Loganlee, Pentlands.

869 **palustre** L. *Marsh Bedstraw.* Wat. pl. 1-2 ft. Per. 7-8, ls. 4-6 in whorl. obl.-lanc., blunt, few hairs on edge, lr.-ls. 6 in whorl, upper-ls. 4 in whorl, with 2 smaller; fl. white; fr. smooth on spread. stalks.

Gullane, Aberlady, Blackhall, Balerno (var. lanceolatum), Ratho, Linlithgow.

870 **uliginosum** L. *Bog Bedstraw.* Bogs, &c. 1-2 ft. Per. 7-8, st. slend., brittle, rough; ls. 6-8 in whorl, lin.-lanc., mucron., stiff, rough, like st., with backward-pointing prickles; pan. small, axill., 3-fid; fl. white; fr. dk.-brown, gran., on erect stalk.

Prestonhall, Borthwick, Balerno, Ravelrig, Linlithgow.

873 **Aparine** L. *Cleavers, Goose-grass, Robin-run-in-the-hedge.* Hedges, &c. 1-5 ft. An. 6-9, st. weak, straggling, rough with bent hairs; ls. 6-8 in whorl, lin.-lanc., rough with reflexed prickles; ped. 3-fld. axill. very small, white; fr. cov. with hooked bristles.

Gullane, Aberlady, Longniddry, Roslin, Liberton, Ratho, Dalmeny, Hopetoun, Linlithgow.

196 ASPERULA L. Herbs, differing from Galium mainly in length of corolla-tube, which is as long or longer than the lobes—funnel shaped.

875 **odorata** L. *Sweet Woodruff.* Woods. 1-2 ft. Per. 5-6, creep.; st. slend.; ls. obl.-lanc., 6-8 in whorl, hairy on edge, mucron. (lowest ls. 4-6 in whorl, small, obov.); pan. 3-branched, stalked, term.; fl. small white; fr. glob., rough with hooked hairs—plant fragrant when dry.

Dunglass, Gifford, Fountainhall, Roslin, Colinton, Cramond Brig, Carlowrie, Hopetoun, Almondell, Carribber.

876 **taurina* L. *Broad-leaved Woodruff.* Plantations, &c. 6-24 in. Per. 5-6, ls. 4 in whorl, large, ellip., 3-veined; pan. corymbose; fl. pink-white with very long cor.-tube; fr. rough.

Prestonhall, Arniston, Abercorn.

878 *arvensis* L. *Field Woodruff.* Wa. pl. 3-12 in. An. 7-8, ls. 6-10 in whorl, long, blunt, lin.-lanc.; fl. blue in term. clusters, surrounded by long bracts edged with hairs; fr. smooth.

Musselburgh, Woodhouselee, Slateford.

197 SHERARDIA L.

879 **arvensis** L. *Field Madder.* Cult. gr., &c. 4-12 in. An. 4-10, procumb.; ls. 4 in whorl, obl.-lanc., sharply ptd., rough on edges; fl. very small, lilac, in term. sess. clusters with 7-8 leafy bracts as invol.; cal. 4 segm. (2 bifid), enlarges after flowering and forms crown of 6 pts. to fruit.

Dunbar, North Berwick, Gullane, Borthwick, King's Park, Turnhouse, Kirkliston, Linlithgow.

39. VALERIANACEAE.

Valerian Family—Herbs with oppos. ls.; fl. small, in term. panicles or corymbs; cal. (often rudimentary), 3-5 toothed; cor 5-cleft; sta. 1-3; carpels 3; fr. small, dry, seed-like.

Key to Genera.

I. *Fruit crowned with feathery pappus :*
(1) *Sta.* 3, *corolla pouched* . . . *Valeriana* 198
(2) *Sta.* 1, *corolla spurred* . . . *Kentranthus* 199
II. *Fruit crowned with unequal teeth :*
(1) *Sta.* 3, *corolla-tube obconic — plant small* . . . . . *Valerianella* 200

198 VALERIANA L. Ls. oppos., gen. pinnfid or toothed, lowest often ent.; fls. many, white or pink in term. corymbs or panicles; cor.-tube pouched at base, with 5 short lobes, sta. 3; fr. small, 1-seeded, crowned with bell-shaped feathery pappus (cal.-teeth develop thus after flowering).

880 **dioica** L. *Marsh Valerian.* Marshes. 6-10 in. Per. 5-6, st. erect, unbranched, with runners; rad. ls. stalked, ov., st.-ls. pinnfid. with large term. lobe; fl. gen. dioecious, pink; fem.-fl. small in close corymb, male-fl. large, sta. promin.; fr. smooth.

Borthwick, Dalkeith, Newbattle, Gorebridge, Roslin, Pentlands, Currie, Gogar, Linlithgow, Almondside, Kirkliston.

882 **sambucifolia** Mik. = **officinalis** Sm. = var. of *officinalis* L., B. & H. *Elder-leaved Valerian.* Riversides. 2-4 ft. Per. 6-8, st. with runners (not suckers as in *V. officinalis* L.) ls. all pinnfid., 4-6 pairs lfts. toothed, lanc., rad. ls. have ovate-acute lft.; fr. smooth.

Haddington, Gosford, Longniddry, Prestonahll, Roslin, Gogar, Barnton, Cramond, South Queensferry, Humbie, Carribber.

883 **pyrenaica* L. *Heart-leaved Valerian.* Plantations, &c. 2-4 ft. Per. 6-7, ls. very large, stalked, cord. deeply toothed, upper ls. with 1-2 basal lanc. lfts.; fl. pink. in large flat term. corymbs.

Eskbank, Arniston, Roslin, Penicuik, Carlops, Colinton, Juniper Green, Currie, Cramond, Carlowrie, South Queensferry, Hopetoun, Almondside, Kirkliston.

199 *KENTRANTHUS* Neck.

884 **ruber* D.C. *Red Spur Valerian.* Walls, &c. 1-2 ft. Per. 6-9, plant, smooth, glauc.; ls. ent. ovate, acute; fl. red, in dense term. pan. with bracts; cor. spurred, lobes unequal; fr. crowned by bell-shaped feathery pappus.

Dirleton Castle, Colinton, Currie.

200 VALERIANELLA Hill. Small plants; ls. narr., ent., more or less toothed near base; fl. very small, lilac, in small compact cymes, or sol., bracts oppos. lin.; cal.-teeth distinct; fr. small, 3-celled, 1-seeded.

886 **olitoria** Poll. *Corn-Salad, Lamb's Lettuce.* Hedgerows, &c. 2-6 in. An. 4-6, ls. ovate, spoon-shaped, upper narr.; fl. in dense. term. cymes; fr. broad, compressed, furrowed, fert. cell corky, tipped by 3 minute, bent teeth.

North Berwick, Gullane, Longniddry, Borthwick, Comiston, Humbie, Carriden.

887 ***eriocarpa** Desv. *Rough-fruited Corn-Salad.* Wa. pl. 2-6 in. An. 5-6, distinguished by its hairy fruit crowned with large 5-toothed cal.; fr. fert. cell not corky.

Leith, Slateford, Bo'ness.

890 **dentata** Poll. *Smooth narrow-fruited Corn-Salad.* Cult. gr., &c. 2-6 in. An. 6-8, st. wiry; ls. narr.-toothed near base; fl. in loose cymes, lilac; fr. narr., flattish, ov., smooth; 2 ribs on face, crowned by 4-toothed, cup-shaped calyx.

Yester, Dirleton, Gullane.

40. DIPSACACEAE.

Teasel Family—Herbs with oppos. ls.; fl. small in capitulum or head, each floret with invol. of bracts, cal. of 5 bristles; cor. tubular, 4-5 lobed; sta. 4 *free*, ovary 1-celled; fr. small, dry, often enclosed in involucre.

Key to Genera.

1. *Plant prickly; calyx cup-shaped, bracts spiny* . *Dipsacus* 201
2. *Plant not prickly; calyx* 4-15 *bristles* . . *Scabiosa* 202

201 DIPSACUS L.

891 **sylvestris.** *Wild Teasel.* Wa. pl. 4-6 ft. Per. 8-9, plant erect, prickly; ls. long, lanc., coarsely toothed, light-

gr., prickly beneath, united at base; fl.-hd. ov.-cylind. (3 in. × 1½ in.), invol.-bracts 8-12, unequal, stiff, lin., prickly, curved upwards, recept.-scales, broad, hairy at base, ending in spine; fl. lilac; fr. 4-ang. with 8 small hollows.

Gosford, Longniddry, Port Seton, Levenhall, Craigmillar, Slateford, Linlithgow.

202 SCABIOSA L. Ls. ent. or pinnfid.; fl.-hd. nearly glob. or flattish, invol.-bracts small, gr.; recept. scaly; outer fl. often larger, cal.-tube contracted at top, with cup-shaped rim or 4-5 persist. bristles; cor. 4-5 cleft, sometimes 2-lipped; fr. furrowed, crowned by cal.-rim or bristles.

893 **Succisa** L. = **pratensis** Moench. *Devil's-Bit Scabious.* Past., &c. 1-3 ft. Per. 7-9, plant slend. (with rhizome abruptly "bitten" off); rad. ls. obl. ent. hairy, st.-ls. toothed; fl.-hd. nearly glob. on long ped.; fls. purp.-blue, nearly *all alike, cor. 4-cleft;* fr. nearly cylind. with 8 furrows, crowned by bristles.

Aberlady, Roslin, King's Park, Colinton, Balerno, Ravelrig.

894 **Columbaria** L. *Small Scabious.* 1-2 ft. Per. 7-8, ls. pinnfid., lighter gr.; st.-lf.-segm. lin.; fl.-hd. glob. on long ped.; fl. lilac, 5-*cleft, outer fl. much larger;* fr. cylind., 8-furrowed, crowned by 4-5 bristles.

Tantallon, Canty Bay, North Berwick, Carriden.

895 **arvensis** L. = **Knautea arvensis** Coult. *Field Scabious.* Cult. gr., &c. 1-4 ft. Per. 6-8, st. rough; rad. ls. simp., lanc. toothed, stalked; st.-ls. toothed or pinnfid.; fl.-hd. large, on long ped.; florets lilac, 4-*cleft, outer fl. much larger;* fr. 4-sided, 4-*furrowed,* crowned with 8 *or more bristles.*

Cockburnspath, Dunbar, Aberlady, Ratho, Dalmeny, Carlowrie, Banks of Almond, Kirkliston.

41. COMPOSITAE.

Daisy Family—Herbs with ls. gen. simp. and without stip.; florets tubular, ligulate (strap-shaped) or both, crowded together into a capitulum (or fl.-hd.)—a "compound flower." Each floret, often with a chaffy scale, is inserted on the enlarged end of the stem ("receptacle") and surrounded by one or more whorls of bracts, forming an involucre. The calyx is often

represented by a ring of hairs—the pappus of the fruit; sta. 5 inserted in the cor.-tube, have anthers united round the thread-like, 2-fid style; fr. dry, 1-seeded nut or achene, often crowned with pappus—cypsela.

Key to Genera.

I. *Fls. all alike, tub., perf. purp., style v. long; ls. oppos.*	*Eupatorium*	203
II. *Central fls. tub., gen. yell.; outer lig. thread-like or 0:*		
1. *Fls. all yell.; recept. pitted; pappus 1 row stiff hairs*	*Solidago*	204
2. *Ray-fls. wh. or pk.; recept. conical; pappus 0*	*Bellis*	205
3. *Ray-fls. purp., 1 row (or 0); recept. pitted; pappus stiff hairs*	*Aster*	206
III. *Anthers with 2 bristles at base; pappus silky:*		
1. *Fls. all tub., invol.-bracts dry, scaly:*		
(1) *Recept. conical; inner fls. perf., outer fem.*	*Filago*	208
(2) *Recept. convex; dioec.; male tub., fem. thread-like*	*Antennaria*	209
(3) *Recept. flat; inner fls. perf., outer fem.*	*Gnaphalium*	211
2. *Ray-fls. lig., fem.; disc-fls. perf.:*		
(1) *Pappus 1 row hairs*	*Inula*	212
(2) *Pappus with an outer row of short scales*	*Pulicaria*	213
IV. *Pappus bristle-like; ls. oppos.:*		
1. *Ray-fls. lig., neut. or 0, disc-fls. perf.; pappus 2-5 bristles*	*Bidens*	214
V. *Pappus none:*		
1. *Ray-fls. lig., 1 row gen. white, fem. neut. or 0; disc-fls. perf.:*		
(1) *Recept. small, scaly; fr. compressed*	*Achillea*	216
(2) *Recept. convex, scaly; fr. angular*	*Anthemis*	218
(3) *Recept. mostly flat, naked; fr. ang. or striate*	*Chrysanthemum*	219
(4) *Recept. conical; fr. 3-5 ribbed on inner side only*	*Matricaria*	220

2. *Fls. all tub.; invol.-bracts imbricate:*
   (1) *Recept. broad; fr. ang., bracts many* . . . . . *Tanacetum* 222
   (2) *Recept. narr.; fr. obov., bracts few* . . . . . *Artemisia* 223

VI. *Pappus gen. v. soft; ray-fls. lig. or 0; ls. rad. or alter.:*

1. *Ls. all rad., produced after fl.; disc-fl. style-arms joined:*
   (1) *Heads sol.; disc-fls. tub. male, ray-fls. lig., fem.* . . . *Tussilago* 224
   (2) *Heads many, sub-dioec. not yell., outer fls. tub.* . . . . *Petasites* 225
2. *Disc-fl. style-arms free:*
   (1) *Invol.-bracts 2-3 rows, equal; pappus stiff hairs* . . . *Doronicum* 226
   (2) *Invol.-bracts 1 row (with scales); pappus silky* . . . . *Senecio* 227

VII. *Fls. all tub., style gen. ent., swollen below stig., invol. imbric. spinous; ls. gen. spinous:*

1. *Ls. bracts, &c., spinous:*
   (1) *Outer bracts leafy, inner chaffy, anthers tailed; pappus feathery, branched* . . . . . *Carlina* 228
   (2) *Invol. glob., outer bracts hooked; anthers tailed; pappus short, hairs simp.* . . . . . *Arctium* 229
   (3) *Pappus hairs rough, simp.; filam. free; fr. compressed* . . . *Carduus* 230
   (4) *Pappus hairs feathery; fr. compressed* . . . . . *Cnicus* 231
   (5) *Pappus simp. in ring, recept. honeycombed; fr. 4-ang.* . . *Onopordon* 232
   (6) *Pappus silky; filam. united; recept. scaly; ls. with white veins* . *Silybum* 233
2. *Ls., &c., not spinous:*
   (1) *Invol.-bracts with straight pts.; outer fls. large, neut.; pappus hairs short, unequal* . . . . *Centaurea* 236

VIII. *Florets all ligulate, perf. 5-toothed; juice milky:*

1. *Florets blue:*
   (1) *Invol.-bracts. 2 rows, inner reflexed after flowering; pappus 2 rows minute scales* . . . . *Cichorium* 237
2. *Florets yellow:*
   (1) *Invol.-bracts 1 row, erect; pappus 0* *Lapsana* 239
   (2) *Invol.-bracts 2 rows, outer smaller; pappus feathery* . . . . *Picris* 240
   (3) *Invol.-bracts 2 rows, outer loose; pappus simp., soft.* . . . *Crepis* 241
   (4) *Invol.-bracts many, imbric.; pappus 1 row stiff, brittle, unequal, brownish hairs* . . . . *Hieracium* 242
   (5) *Invol.-bracts many, imbric.; pappus feathery, outer row short bristles* . . . . . *Hypochoeris* 243
   (6) *Invol.-bracts unequal; pappus many rows, white silky simp. hairs; fr. much flattened* . . . *Sonchus* 247
   (7) *Invol.-bracts 2-3 rows, outer smaller, inner pappus feathery; fr. shortly beaked* . . . . . *Leontodon* 244
   (8) *Invol.-bracts 2 rows, outer recurved; pappus simp., silky; fr. rough, beaked; st. leafless* . . . *Taraxacum* 245
   (9) *Invol.-bracts. imbric., outer shorter; pappus simp.; fr. flattened, beak long, slend.* . . . . . *Lactuca* 246
   (10) *Invol. simp., 8-10 long bracts united at base; pappus many rows, feathery; fr. striate, beak long* . *Tragopogon* 248

203 EUPATORIUM L.

897 **cannabinum** L. *Hemp-Agrimony.* Moist woods. 2-4 ft. Per. 7-9, st. erect, reddish, downy; *ls. oppos.* palmately 3-lobed, lft. lanc. toothed; fl.-hds. many, in dense term. corymbs, *purplish, fls. all tubular,* perf., style very long, protrud., deeply cleft; pappus hairs simp.

Billsdean, Lasswade, Roslin, Craigiehall, Linlithgow.

204 SOLIDAGO L.

898 **Virgaurea** L. *Golden-Rod.* Heathy pl. 6-30 in. Per. 7-9, st. stiff, little-branched; ls. simp. lanc. fl.-hds. in long narr. term. pan.; ray-fls. 10-12 bright yell., recept. pitted; pappus 1 row stiff hairs.

Shippath Dean, Oldhamstocks, Roslin, Habbie's Howe, Cramond, Colinton, Ravelrig, Carribber.

205 BELLIS L.

899 **perennis.** *Daisy, Gowan.* Fields, &c. 2-5 in. Per. 3-10, ls. rad., obov., simp.; ped. rad., leafless, 1-fld.; ray-fls. white, tipped crim.

Everywhere.

206 ASTER L.

902 **Tripolium** L. *Sea Aster, Michaelmas Daisy.* Salt marshes. 1-2 ft. Per. 8-9, st. erect or decumb.; ls. lanc., ent., fleshy; fl.-hds. in corymb, ray-fl. purplish, sometimes 0, recept. pitted; pappus many stiff hairs.

Dunbar, Gullane, Aberlady, Abercorn.

208 FILAGO L. Slend. plant, cov. with white cottony wool; ls. small, ent.; fl.-hd. small, in axill. and term. clusters; fls. all tubular, invol.-bracts dry, scaly; recept. conical with few scales at margin; inner fls. perf., anthers tailed, outer thread-like, fem.; pappus silky.

907 **germanica** L. *Upright Cudweed, Impious Weed.* Dry soils. 4-18 in. An. 7-9, st. erect; ls. erect, lanc. acute, cottony; fl.-hd. small, in glob. clusters (12-20), over-topped by similar clusters arising from base of the first, reddish-brown; invol.-bracts yell.-brown, acute.

Dunbar, East Linton, North Berwick, Drem, King's Park, Lasswade, Slateford, Linlithgow.

910 **minima** Fr. *Least Cudweed.* Dry, sandy pl. 2-8 in. An. 6-9, slender, st. more irreg., branched at top; ls. lin.-lanc., acute, adpressed; fl.-hd. smaller, more num.; fl. yell.; invol.-bracts cottony, with shiny tips.

Dunbar, Gullane, Aberlady, King's Park, Dolphinton, Slateford, Dalmahoy.

209 ANTENNARIA Gaertn.

912 **dioica** Gaertn. *Mountain Cat'sfoot, Everlasting.* Hills, heaths. 3-8 in. Per. 6-7, st. procumb.; lr.-ls. obov., upper lin., white, woolly underneath; fl.-hds. in corymb, dioecious; inner bracts of male, tubular fls. have spread., white, petal-like tips, those of fem., thread-like fls. are narr., erect; anthers tailed; recept. convex; pappus long, protruding.

Tynehead, Kaimes Hill, Cockleroy.

211 GNAPHALIUM L. Woolly plant; ls. narr., ent.; fl.-hd. small, in clusters, inner fls. tubular, anthers tailed, outer fem., thread-like, recept. flat; pappus hairs simp.

914 **uliginosum** L. *Marsh Cudweed.* Moist pl. 2-9 in. An. 7-10, st. cottony, much branched; ls. narr., downy, over-topping term., clusters of fl.-hds.

Tyne Estuary, Braids, Blackhall, Glencorse, Pentlands, Kirkliston, Linlithgow.

917 **sylvaticum** L. *Heath Cudweed.* Heaths. 6-15 in. Per. 7-9, st. simp., ls. cottony on under side; fl.-hd. small in axill. clusters, forming a leafy interrupted spike; bracts with brown border.

Roslin, Comiston, Pentlands, Currie.

212 INULA L.

920 ***Helenium** L. *Elecampane.* Wet. pl. 2-5 ft. Per. 7-8, garden-escape, st. erect, stout; lr.-ls. very large, stalked, ent. obl.-lanc., downy beneath, st.-ls. sess. cord. or clasp.; fl.-hd. 3 in. across, term. sol. bright yell.; invol.-bracts broad-ovate, outer reflexed, downy; disc.-fls. perf., ray-fls. lin.; pappus 1 row hairs.

Prestonhall, &c.

213 PULICARIA Gaertn.

925 **dysenterica** Gray. = **Inula dysenterica** L. *Fleabane.* Wet pl. 1-2 ft. Per. 7-9, st. woolly, branched; ls. hoary, obl., ent., waved, clasping with round ears; fl.-hd. bright yell. axill. and term.; invol.-bracts narr., bristle-like;

ray-fl. lin.; pappus with outer row of scales like minute cup.

Aberlady, Longniddry, Seton Links, Bo'ness.

214 BIDENS L. Plant smooth; *ls. oppos.;* fl.-hd. brownish yell., almost sol., invol.-bracts leafy, spread.; recept. flat, scaly, disc.-fls. perf., ray-fls., lig. neut., gen. absent; pappus 2-5 barbed bristles.

927 **cernua** L. *Nodding Bur-Marigold.* Ponds. 2-24 in. An. 7-10, st. erect; ls. lanc., ent. or toothed, sess.; fl.-hd. droop., rayless, brownish yell.; pappus 2-3 barbed bristles.

Duddingston Loch.

928 **tripartita** L. *Trifid Bur-Marigold.* Ponds. 2-24 in. An. 7-10, differs from *B. cernua* in its 3-cleft, stalked ls. and almost erect fl.-hd.—pappus of 2 barbed bristles.

Duddingston Loch, Linlithgow Loch.

216 ACHILLEA L. Ls. alter., much divided, rarely simp.; fl.-hd. in corymb, disc-fls. perf., ray-fls. lig., white, few, recept. scaly, flat; fr. compressed; pappus 0.

930 **Millefolium** L. *Yarrow, Milfoil.* Past., &c. 6-24 in. Per. 7-8, ls. lanc., 3-pinnfid., segm. lin. acute; fl.-hd. small in dense term. corymb, white or pink; invol.-bracts with brown edge; ray-fl. 5-6, short.

Dunbar, North Berwick, Longniddry, Fala, Straiton, Bonaly, Abercorn, Linlithgow, Manuel.

931 **Ptarmica** L. *Sneezewort, Goosetongue.* Moist pl. 1-2 ft. Per. 7-9, ls. lin.-lanc., toothed; fl.-hd. few, invol.-bracts with brown edge; ray-fl. 10-15, broad, short, white; *disc.-fls. also white.*

Longyester, Aberlady, Rullion Green, Balerno, Ra ho, Linlithgow, Carribber.

218 ANTHEMIS L. Plant strongly scented; ls. alter., much divided; fl.-hd. sol. or in corymb; invol.-bracts with membr. edges; recept. convex or conical, scaly; fr. ang., pappus 0, or minute membr. ring.

933 **tinctoria* L. *Yellow Camomile.* Wa. pl., ry.-bks. 6-24 in. Per. 7-8, st. cottony, much branched; ls. 2-pinnfid., downy beneath; fls. wholly yell., recept., semi-glob., scales stiff.

Longniddry, Leith, Craigmillar.

934 **Cotula** L. *Stinking Camomile, Mayweed.* Cult. gr., &c. 6-16 in. An. 6-8, st. erect; ls. 2-pinnfid., segm. hair-like, smooth; glands, very strong odour; fl.-hds. long-stalked; invol.-bracts lin., bristle-like, recept. long, conical; ray-fls. white, neuter.

Dirleton, Aberlady, Port Seton, Roslin, Leith, Slateford.

935 **arvensis** L. *Corn Camomile.* Cult. gr., wa. pl. 6-24 in. An. 6-8, st. erect; ls. 2-pinnfid., hoary, segm. lin.-lanc.; fl.-hd. large, on long ped., invol.-bracts acute, recept. conical, scales of recept. longer than central fl.; ray-fls. white, fem.

Aberlady, Prestonhall, Lasswade, Roslin, Leith, Slateford, Linlithgow.

219 CHRYSANTHEMUM L. Ls. alter., toothed or lobed; fl.-hd. sol. or in corymb, invol.-bracts with membr. edges; recept. flat (or convex), without scales; ray-fls. lig., fem.; fr. ang. or striate; pappus 0 (or minute, toothed ring).

937 **segetum** L. *Corn Marigold, Yellow Ox-eye, Gule.* Cornfields. 12-18 in. An. 6-10, st. erect, branches spread.; lr.-ls. obov. stalked, upper clasp., smooth, glauc., lobed, with deeply cut teeth at tip; fl.-hd. large, sol. term. ray-fls. golden yell., invol.-bracts with broad membr. edge.

Aberlady, Musselburgh, New Hailes, Abercorn, Linlithgow.

938 **Leucanthemum** L. *Ox-eye Daisy.* Past., ry.-bks., &c. 2-24 in. Per. 6-8, st. simp. or slightly branched; ls. dk.-gr. above, rad. ls. obov., taper. into long petiole, coarsely toothed; st. ls. sess., obl., blunt., with few coarse teeth; fl.-hd. large, sol.; invol.-bracts with narr. membr. edge; ray-fls. white.

East Linton, Gifford, Longniddry, Burdiehouse, Slateford, Lymphoy, Dalmeny, Carlowrie, Linlithgow.

939 ***Parthenium** Bernh. *Feverfew.* Wa. pl. 1-2 ft. Per. 7-9, st. branched; ls. pinn., segm. ovate, 2-pinnfid., toothed, light gr.; fl.-hds. in corymb; recept. convex, ray-fls. white; fr. with minute, toothed ring—odorous.

North Berwick, Aberlady, Dalkeith, Craigmillar, Slateford, Colinton, Ratho.

220 MATRICARIA L. Ls. alter., much divided; fl.-hd. term., sol. or in corym., invol.-bracts with membr. edge, recept. conical, without scales; ray-fls. lig., white, or 0; fr. 3-5 ribbed on inner side only, smooth on outer; pappus 0.

940 **inodora** L. *Scentless Mayweed, Corn Feverfew.* Cult. gr., &c. 1-2 ft. An. 6-10, ls. 2-3 pinnfid., sess., segm. hair-like; fl.-hd. sol., invol.-bracts edged brown; recept. conical; fr. 5-ribbed on inner side, with 2 gland. spots and minute rim—almost scentless.

North Berwick, Longniddry, Seton Mains, Craigmillar, Braids, Juniper Green, Kirkliston, Linlithgow, Manuel.

(*c*) **salina** D.C. *Annual Sea Feverfew,* lf.-segm. short, crowded, succulent.

Longniddry.

941 **Chamomilla** L. *Wild Camomile.* Cult. gr., &c. 12-18 in. An. 6-8, ls. 2-3-pinnfid., segm. lin.; fl.-hd. large, term., invol.-bracts *without dark edge*; recept. hollow, long, *conical*; ray-fls. white; fr. 3-ribbed on inner side—faintly aromatic.

North Berwick, Haddington, Longniddry, Musselburgh, Comiston, Slateford, Colinton, Kirkliston, Linlithgow, Avonbridge.

942 **suaveolens* Buch. = *discoidea* D.C. *Rayless Mayweed.* Wa. pl. 4-12 in. An. 6-8, st. very leafy; ped. short; fl.-hd. with involucre of broad membr. bracts but no ray florets.

North Berwick, Haddington, Longniddry, Comiston, Gogar, Ratho, South Queensferry, Bo'ness, Manuel.

222 TANACETUM L.

944 **vulgare** L. *Tansy.* Dry pl. 2-3 ft. Per. 8-9, st. ang.; ls. deeply 2-pinnfid., toothed; fl.-hd. in term. corymb, yell., fls., all tub.; invol.-bracts many, membr. at edge, recept. broad; fr. ang., crowned with lobed membr. disc.; pappus 0—aromatic.

Hailes, Longniddry, Prestonhall, Musselburgh, Cramond, Dalmeny, Carlowrie, South Queensferry, Linlithgow.

223 ARTEMISIA L. Ls. alter., narr., gen. much divided, often white or gray; fl.-hd. small, in term. leafy rac. or pan.; invol.-bracts few, imbric. gen. cottony with membr. edges; recept. narr.; fls. all tub.; inner male; outer, thread-like, fem.; scales 0; pappus 0.

945 **Absinthium** L. *Wormwood.* Wa. pl. 1-2 ft. Per. 8-9, st. erect, hard; ls. silky on both sides, 2-pinnfid., segm. lanc. blunt; fl.-hd. dull yell., droop., silky; inner fls. many, mostly fertile, outer small, fem. often barren—aromatic.

West Barns Links, Aberlady, Morrison's Haven, Levenhall, Portobello, Leith, Slateford, Swanston, Murieston.

946 **vulgaris** L. *Mugwort.* Wa. pl. 2-4 ft. Per. 7-9, st. erect; ls. dk.-gr. above, woolly beneath, deeply pinnfid., segm. lanc.-acute, coarsely toothed; fl.-hd. erect, woolly, brownish yell., 12-20 perf. fl. with a few fem.—not aromatic.

Dunbar, Gullane, Longniddry, Corstorphine, Cramond, Ratho.

947 **campestris** L. *Field Wormwood.* Heathy pl. 1-3 ft. Per. 8-9, st. twiggy, spread. or procumb., often red.; ls. 2-pinn. segm. lin., silky beneath; fl.-hd. smooth, droop., small, ovoid, outer fls. (5-6) alone fert.—not aromatic.

Leith, South Queensferry.

948 **maritima** L. *Sea Wormwood.* Seashore. 9-18 in. Per. 8-9, st. much-branched, decumb.; ls. woolly, pinnfid., segm. narr., lin., blunt; fl.-hd. droop., narr., ovoid; invol.-bracts cottony; fls. few, 3-6 perfect.

Dunbar, Gullane, Aberlady.

224 TUSSILAGO L.

950 **Farfara** L. *Coltsfoot.* Wa. pl. 4-10 in. Per. 3-6, creep.; ls. rad., appear after fl.-hds. wither, large, broad, cord. ang., felted beneath; fl.-st. with scaly bracts; fl.-hd.

sol., bright yell., disc-fls. male, ray-fls., lig., fem.; pappus hairs snow white, simp.

Dunbar, Haddington, Cockenzie, Bilston, Blackford, Balerno, Kirkliston, Linlithgow, Whitburn.

225 PETASITES Hill. Ls. large, broad, rad., appear after the fls.; fl.-hd. in rac. sub-dioecious—fem.-fl. thread-like or lig. in many rows, in the fem. fl.-hd., none, or 1 row in the "male fl.-hd."; male fl. tubular, few, form. a complete male fl.-hd. or centre of some "fem. fl.-hds."

951 **fragrans* Presl. = *Nardosmia fragrans. Winter Heliotrope.* Plantations, wa. pl. 6-12 in. Per. 2-5, ls. cord., downy below; fl.-hd. in loose pan., dingy, sweet-scented; fem. fl. shortly ligulate.

North Berwick, Inveresk, Polton, Roslin, Colinton, Kirkliston.

952 **ovatus** Hill = **officinalis** Moench. = **vulgaris** Desf. = **hybrida** L. = **Tussilago petasites** L. *Butterbur.* Wet pl. 6-12 in. Per. 3-5, creep; ls. rad., very large, 1-3 ft. across, round, cord., toothed, downy beneath; ped. short, fleshy, with sheathing bracts; fl.-hd. dull lilac, in dense ovoid spikes on male plant, in long loose ones on the fem.

East Linton, Gifford, Gullane, Roslin, Blackford, Gogar, Dalmeny, Philipstoun, Manuel.

953 **albus* Gaertn. *White Butterbur.* Wa. pl., plantations, &c. 6-12 in. Per. 3-5, ls. smaller than of *P. fragrans*, cord., deeply scalloped, felted beneath; fl. white or cream.

Gifford, Kirkliston, Flotterston, Carribber.

226 *DORONICUM* L. Ls. rad., long-stalked, broad; st. ls. few, alt.; ped. long; fl.-hd. large, yell.; invol.-bracts lin., recept. conical; disc.-fls. perf. with stiff pappus, ray-fl. with no pappus.

954 **Pardalianches* L. *Great Leopard's Bane.* Plantations, &c. 2-3 ft. Per. 5-7, st. erect, hollow, hairy; ls. soft, hairy, ovate, cord., rad. ls. on long stalks, lr.-st.-ls. with clasp. ears, upper-st.-ls. sess.; fl.-hd. 3-5 large, yell.; fr. obl. furrowed.

Haddington, Prestonhall, Inveresk, Dalkeith, Hallyards, Almondell, South Queensferry, Kirkliston, Hopetoun, Carribber.

955 **plantagineum* L. *Plantain-leaved, Leopard's Bane.* Plantations, &c. 2-3 ft. Per. 5-7, rad. ls. ovate, narr. or wedge-shaped at base, 3-5 ribbed, st.-ls. sess. clasp. lowest with winged stalk; fl.-hd. gen. sol., on long ped.

Tynehead, Musselburgh, Arniston, Dalhousie, Kirkliston.

227 SENECIO L. Ls. alter., divided, rarely entire; fl.-hd. in term. corymb; disc-fls. yell., tubular, perf.; ray-fls. yell. lig. fem., spread. or 0; invol.-bracts lin., often tipped brown; fr. cylind.; pappus simp., soft, white.

956 **vulgaris** L. *Groundsel.* Cult. gr., wa. pl. 3-12 in. An. 4-12, smooth or slightly cottony; ls. pinnfid., sess., toothed; fl.-hd. droop. in dense clusters, invol.-bracts (20) equal, several outer small, black-ptd.; fr. slightly hairy.

Dunbar, Gullane, Longniddry, Crichtoun, Polton, Currie, Dalmeny, Linlithgow, Bo'ness.

958 **sylvaticus** L. *Heath or Mountain Groundsel.* Heathy pl. 6-36 in. An. 7-9, slightly viscid, hairy; ls. deeply pinnfid., unequally toothed, downy; fl.-hd. many, in loose corymb; invol.-bracts narr. (12-14), outer very small; ray-fls. lig. small, soon rolled back, or 0; fr. silky with minute adpressed hairs.

Dunbar, King's Park, Blackford Hill, Braids, Corstorphine, Kirkliston.

959 **viscosus** L. *Stinking Groundsel.* Wa. pl. 6-24 in. An. 7-9, very sticky, with strong-smelling down; ls. deeply pinnfid., segm. unequally toothed; fl.-hd. in loose term. corymb; invol.-bracts (20) outer as long as inner, ray-fls. 10-15, lig. small, soon rolled back; fr. smooth.

Aberlady, Longniddry, New Hailes, King's Park, Straiton, Braids, Dalmeny.

962 **Jacobaea** L. *Ragwort.* Roadsides, &c. 1-4 ft. Per. 6-9, ls. 2-pinnfid., gen. lyrate, coarsely toothed, smooth; fl.-hd. large, bright yell. in compact term. corymb; invol.-bracts black-tipped, outer few, very small; fr. of disc-fl. hairy, of ray-fl. smooth; pappus decid.

Dunbar, Yester, Longniddry, Musselburgh, Arthur's Seat, Comiston, Kirkliston, Abercorn, Linlithgow.

(*b*) **discoideus** L. No ray florets. *Craigmillar.*

963 **aquaticus** Hill. *Marsh Ragwort.* Mead., &c. 1-3 ft. Bi. 7-8, ls. variable, rad.-ls. ent. ov. or obl., upper ls. lyrate, toothed; fl.-hd. large, on long ped. in loose irreg.-corymb; fr. all smooth.

North Berwick, Tynninghame, Duddingston, Balerno, Ravelrig, Linlithgow.

964 ***sarracenicus** L. *Broad-leaved Ragwort.* Str.-sides, &c. 3-5 ft. Per. 6-7, st. solid.; ls. simp., lanc. toothed, smooth, sess.; fl.-hd. many small, in compact corymb, ray.-fls. 5-8.

Dunbar, Comiston, Kirkliston, Bathgate.

228 CARLINA L.

970 **vulgaris** L. *Carline Thistle.* Dry, sandy pl. 6-18 in Bi. 6-10, low, stiff, very prickly plant; st. erect, branched; ls. pinnfid., toothed, very spiny; lr.-ls. narr., slightly cottony; upper-ls. broader, smoother; fl.-hd. large, in small term. corymb; outer invol.-bracts leafy, toothed, spinous; *inner bracts longer, lanc., chaffy, glossy, creamy-white, spreading horizontally when dry, but in damp weather, closing over florets;* recept. flat, deeply pitted with irreg.-cut scales; fls. all tub., red., anth. yell., tailed; fr. silky with 2-fid hairs, pappus *branched*, feathery.

Shippath Dean.

229 ARCTIUM L. = **LAPPA** Hill. Stout plant; ls. very large, cord. stalked; fl.-hd. glob.; invol.-bracts long, stiff, pointed, hooked; recept. scaly, fls. all tubular, perf., purplish; anthers tailed; pappus several rows short, simp. hairs.

972 **nemorosum** Lej. = **Newbouldii** Ar. Ben. = **vulgare** Evans. = **intermedium** Lange. *Wood Burdock.* 2-4 ft. Bi. 7-8, ls. large, obl.-ovate, coarsely cren; petioles hollow; fl.-hd. ovate, nearly sess., usually 3 together.

North Berwick.

974 **minus** Bernh. *Small Burdock.* Wa. pl. 2-3 ft. Bi. 7-8, ls. large, cord., prolonged, rad.-ls. coarsely toothed; petioles hollow, slightly ang., faintly grooved; fl.-hd. ovoid webbed, short-stalked, in cormyb.; inner invol.-bracts purplish; fr. dusky with black blotches.

Tynninghame, Dirleton, Gullane, Longniddry, Musselburgh, Arthur's Seat, Ratho.

230 CARDUUS L. St. erect; ls. cut, gen. very spinous, decurrent, forming spinous wings on st.; fl.-hd. glob. or ovoid; invol.-bracts many, imbric., spinous; recept. pitted, scaly, bristles between fls. which are all tubular, pink or red-purp.; fr. compressed, obl., smooth; pappus simp., long, rough hairs united in ring at base, decid.

975*b* **tenuiflorus** Curt. *Slender Thistle.* Dry pl. nr. sea. 1-3 ft. Bi. 6-8, st. slightly branched, hoary, with broad, deeply lobed, wavy, prickly wings; ls. pinnfid., broad, lanc., cottony beneath, segm. short, lobed, very prickly; fl.-hd. cylind., small, sess. clustered; invol.-bracts ov.-lanc., lengthen. into spine; fl. pale purp.

North Berwick, Gullane, Aberlady, Longniddry, Prestonpans, Musselburgh, Eskmouth, Ratho.

976 **nutans** L. *Musk Thistle.* Wa. pl. 1-3 ft. Bi. 5-10, st. cottony, ang., grooved, interrupt. winged; ls. deeply pinnfid., lanc., wavy, spiny, hairy on both sides, woolly on veins beneath; fl.-hd. large (1-2 in.), sol., *droop.*, crim.-purp.; invol.-bracts lanc., cottony, outer spread, reflexed; fls. have musky odour.

Gullane, Aberlady, Cockenzie, Musselburgh, Port Seton, Drem, Straiton.

977 **crispus** L. *Welted or Crisped Thistle.* Roadsides. 1-3 ft. Bi. 6-8, st. thickly cov. with prickles, continuously winged; ls. narr., lanc., deeply pinnfid.; lobes 3-fid, toothed, prickly; fl.-hd. erect, small, round, clustered; invol.-bracts lin., erect, end. in recurved spine, webbed; fl. deep purp. or lilac.

North Berwick, Aberlady, Musselburgh, New Hailes, Currie, Ratho, Abercorn.

231 CNICUS L. = **CIRSIUM** Hill = **CARDUUS** Bab. p.p., differs from Carduus in having a feathery pappus.

978 **lanceolatus** Willd. *Spear Plume Thistle.* Wa. pl. 2-5 ft. Bi. 7-8, st. winged, grooved, spiny; ls. pinnfid., lobes 2-fid, segm. lanc., ent., end. in long spine, rough on upper side, with prickly hairs, white cottony beneath; fl.-hd. large, few, ovate, 1-3 together, shaggy; invol.-bracts broad-lanc., spread., spiny, woolly; fl. dull purple.

Gullane, Aberlady, Longniddry, Fala, Straiton, Comiston, Glencorse, Abercorn.

979 **eriophorus** Roth. *Woolly-headed Plume Thistle.* Wa. pl. 3-5 ft. Bi. 7-8, st. *not winged*, much branched, grooved, hairy; ls. half-clasp., deeply pinnfid., lobes narr. 2-fid, segm. diverg., end. in stout spine; root ls. 1-2 ft. long, upper smaller; fl.-hd. 2-3 in cluster, glob., large (2-3 in.); invol. cov. with dense, white, cottony web; bracts., lanc., long, end. in reflexed spine; fl. purp.

Between Blackness and South Queensferry—a variety—not the type.

980 **palustris** Willd. *Marsh Plume Thistle.* Moist mead.&c. 1-5 ft. Per. 7-9, st. single, stout, hollow, with wavy spinous wings, slightly branched nr. top; ls. narr., deeply pinnfid.; lobes wavy, spinous, cottony beneath, a few coarse hairs on both sides; fl.-hd. small, ovoid in term. clusters; invol.-bracts ov., lanc., with small prickly pts. adpressed.

Dunbar, Fala, Straiton, Roslin, Balerno, Abercorn.

983 **heterophyllus** Willd. *Melancholy Plume Thistle.* Hilly past. 2-4 ft. Per. 7-8, st. cottony, deeply furrowed, slightly branched above; ls. lanc. (8-18 in.), clasp. not decurr., *undivided*, smooth above, white beneath; fl.-hd. (2 in.), sol., *droop.*, ovate *not prickly*; ped. long.; invol.-bracts ov.-lanc., smooth, adpressed; fl. red-purple.

Shippath Dean, Longyester, Drem, Prestonhall, Roslin, Auchindinny, Biggar Road, Pentlands, Currie, Corstorphine, Mid-Calder, Kirknewton, Almondside, Kirkliston, Newbridge.

985 **arvensis** Hoffm. *Creeping, Field or Way Thistle.* Wa. pl. 1-4 ft. Per. 7-9, creep.; st. *not winged*, leafy, ang.; ls. narr. pinnfid., very spinous, wavy, clasping, with prickly ears; fl.-hd. small, smooth, in corymb; invol.-bracts, broad lanc., adpressed, end. in short spread. spine; *dioecious*—male fl.-hd. glob. with long purp. fl., fem. fl.-hd. ovoid, with longer invol., but short fl.—the two forms grow in separ. patches.

Dunbar, Haddington, Gullane, Aberlady, Fala, Dalkeith, Balerno, Newliston, Abercorn, Bo'ness.

232 ONOPORDON L.

986 ***Acanthium** L. *Cotton Thistle.* Wa. pl. 2-6 ft. Bi. 7-9, plant stout, hoary; st. erect, branched, with broad spinous wings; ls. ov.-obl. pinnfid., wavy, woolly on both sides; fl.-hd. erect, sol., large, glob., webbed; invol.-bracts awl-shaped, spread., recurved, fringed with minute teeth, *recept. honeycombed*; fl. pale purp.; fr. 4-ang.; pappus hairs simp., rough—cultivated as Scottish National emblem.

Gullane, Gosford, Dalkeith, Leith.

233 *SILYBUM* Vaill.

987 **Marianum* Gaertn. *Milk, or Lady's Thistle.* Wa. pl. 1-5 ft. Bi. 7-9, st. ribbed; ls. large, glossy, *veined with white*, obl.-lanc., wavy, clasp. with prickly ears; rad.-ls. pinnfid.; fl.-hd. large, glob., sol., droop.; invol.-bracts leaflike with long, term., recurved spine, adpressed; fl. red.-purp., tube long.; pappus hairs simp.

Dunglass Dean, Tantallon, North Berwick, Musselburgh, Leith, Duddingston, Slateford, Linlithgow.

236 CENTAUREA L.

Seldom prickly; st. wiry; ls. ent. or pinnfid.; fl.-hd. glob. or ovoid.; fls. all tub., outer row usually larger and neuter; invol.-bracts many, adpressed, membr. with fringed or toothed appendages or prickles; recept. with bristles between fls.; fr. smooth; pappus of simp., unequal hairs or 0.

996 **pratensis** Thuill. = **nigra** L. *Hard head, Knapweed, Soldiers.* Grassy pl. 6-36 in. Per. 6-9, ls. lin.-lanc., upper ent. sess.; lr.-ls. with coarse teeth, or lobed; fl.-hd. term. glob.; invol.-bracts closely imbric., showing only the brown, deeply fringed appendages; fls. red-purp., gen. all small, sometimes outer row larger and neut.; pappus of minute, scaly bristles.

Dirleton, Aberlady, Longniddry, Roslin, Comiston, Cramond, Dalmeny, Abercorn, Linlithgow.

1001 **Scabiosa** L. *Great Knapweed, Matfelon.* Cult. gr., &c., nr. sea. 1-3 ft. Per. 7-9, st. stout, branched; ls. deeply pinnfid., segm. lanc., often coarsely toothed; fl.-hd. large; invol.-bracts with green centres, black-fringed, downy border; fls. red-purp., outer enlarged, neut.; pappus hairs stiff.

Dunbar, Thornton Loch, Aberlady, Longniddry, Musselburgh, Howgate, Gogar, Linlithgow.

1002 **Cyanus** L. *Cornflower or Corn Bluebottle.* Cornfields. 1-2 ft. An. 6-8, st. grooved, branched, downy; ls. lin.-lanc., ent., lower toothed (or pinnfld.); fl.-hd. sol., ovoid on long ped.; invol.-bracts bordered by fringe of very small teeth; central fls. bluish-purp., outer much larger, *bright blue*, spreading.

Gullane, Drem, Haddington, Leith, Comiston.

1006 *solstitialis* L. *Yellow Star Thistle.* Wa. pl. 1-3 ft. An. 7-10, st. narr. winged, branches few; ls. lin.-lanc., hoary, upper ls. ent., lr.-ls. pinnfid.; fl.-hd. term., sol., *yell.*; invol.-bracts with very long needle-like spines.

Musselburgh, Portobello, Leith, Slateford.

237 CICHORIUM L.

1007 **Intybus** L. *Chicory, Wild Succory.* Wa. pl. 1-2 ft. Per. 7-10, plant with milky juice; st. strong, tough, branched; lr.-ls. runcinate, coarsely toothed; upper-ls. lanc., ent., clasp. with ptd. ears; fl.-hd. sess., axill., in pairs; invol.-bracts 2 rows, outer smaller, inner reflexed after flowering; fls. all lig. 5-toothed, *bright blue*; fr. smooth; pappus 2 rows of minute, chaffy scales.

Aberlady, Haddington, Seton Mains, Portobello, Comiston, Slateford, Hailes, South Queensferry.

239 LAPSANA L.

1009 **communis** L. *Nipplewort.* Wa. pl. 1-3 ft. An 7-9, slend. plant with milky juice; ls. thin, gen. hairy; lr.-ls. ovate, coarsely toothed, with few small lobes along stem; upper-ls. small, narr., ent.; fl.-hd. small, on slend. ped. in loose corymb; invol.-bracts 1 row, erect, lin., stiff, glauc., sometimes a few very small outer ones; fls. all lig. yell.; fr. slightly compressed, many-nerved, pappus 0.

Haddington, Aberlady, Longniddry, Musselburgh, Arthur's Seat, Blackford Hill, Kirkliston, Linlithgow, Manuel.

240 PICRIS.

1011 **echioides** L. = **Helminthia echioides** Gaertn. *Ox-tongue.* Hedges, wa. pl. 2-3 ft. An. 6-10, stout, much-branched, plant with milky juice; st. hispid with stiff, 3-fid. hooked bristles, rising from white tubercular base; ls. lanc., coarsely toothed, very rough, like stem, upper ls. cord., clasp; fl.-hd. rather small, crowded in irreg. term. corymb; outer invol.-bracts narr., cord., rough; fls. all lig. yell.; fr. brown, beak long; pappus white, feathery.

East Linton, Portobello, Leith, Murrayfield, Slateford.

241 CREPIS L.

Branched plant, with milky juice; st. leafy; fl.-hd. rather small, in loose corymb; invol.-bracts many, 2 rows, outer small, loose; recept. pitted; fls. all lig. yell.; fr. ribbed, tapering or beaked; pappus simp., soft.

1015 **capillaris** Wallr. = **virens** L. *Smooth Hawksbeard.* Wa. pl. 4-36 in. Per. 7-9, plant smooth, very variable; rad. ls. lyrate; st.-ls. lin., arrow-shaped, clasp., distantly toothed; fl.-hd. small; fls. lig. yell.; inner invol.-bracts smooth within; fr. small, shorter than pappus.

Dunbar, Haddington, Longniddry, Inveresk, Roslin, Currie, South Queensferry, Abercorn, Linlithgow.

1017 **biennis** L. *Rough Hawksbeard.* Wa. pl. 1-4 ft. Bi. 6-7, hispid with stiff hairs; rad. ls. pinnfid., narr. to base; st.-ls. sess., arrow-shaped, clasp., toothed; upper ls. ent.; fl.-hd. (1 in.) yell.; invol.-bracts, downy within; fr. equal to or longer than the pure white pappus.

North Berwick, Tynninghame, Drem, Aberlady, Luffness.

1018 **mollis** Aschers. = **succisaefolia** Tausch. = **Hieracoides** Jacq. *Succory-leaved Hawksbeard.* Shady pl. 1-2 ft. Per. 7-8, ls. ent., obl., blunt, hairy; lr.-ls. stalked; st. ls. clasp., lanc.; fl.-hds. few yell.; invol.-bracts lanc., attenuate, gland.-hairy, outer very short; fr. striate; pappus hairs *pure white, silky.*

Habbie's Howe.

1019 **paludosa** Moench. *Marsh Hawksbeard.* Moist grassy pl. 1-2 ft. Per. 7-9, st. ang., smooth; rad.-ls. runc.; st.-ls. lanc., clasp., with ptd. ears; fl.-hd. yell.

involc.-bracts lanc., attenuate, gland.-hairy, outer small; fr. striate; pappus 1 row *dirty white, stiff, brittle* hairs.

Auchindinny, Colinton, Bavelaw.

242 HIERACIUM L. Plants with milky juice; ls. ent. or toothed; fl-hd. on leafless rad. ped. or in term. corymb or in pan. on leafy st.; fls. all lig., perf., yell., rarely orange; involc.-bracts many, imbric., unequal, recept. nearly flat, without scales, pitted; fr. trunc., with short, cren. edge (not beaked, nor narrowed at top); pappus of simp., gen. stiff, brittle, *brownish* hairs.

A very difficult genus containing many groups of varied forms between which it is impossible to draw an exactly definite line, as they all merge into one another. This variation is not caused by hybridisation, but by an inherent tendency in the plant itself, together with climatic influences, &c. The Hawkweed is a plant of the hills and mountains, comparatively few species being found on the plains.

murorum L. = **silvaticum** Gouan = **vulgatum** Fr. = **triviale** Nov. = agg. of several species of sub-sect. euvulgata in L.C. xi. *Wall Hawkweed.* Walls, banks, &c. 1-3 ft. Per. 6-8, ls. large, ov. or obl. stalked, gen. acute, toothed, rather cord. at base, slightly hairy; fl.-hd. rather large, yell. in loose corymb; ped. smooth or with long white hairs below; involc.-bracts clothed with rusty down, and black, gland. hairs; styles livid or yellowish.

Lammermoors, Cockburnspath, Dunbar, Haddington, Roslin, Pentlands.

1085 **subsanguineum** Z. = **sanguineum** Ley. Walls, &c. 1-2 ft. Per. 6-8, st. grooved, slightly pilose; ls. dull-gr., often red beneath, ov.-obl., truncate at base, often very unequal-sided, smooth, hairs on veins beneath and edges; fl.-hd. large, 3-6, bracts with many dark hairs; styles dull yellow.

Dalmahoy.

1157 **maculatum** Sm. *Spotted Hawkweed.* Roadsides. 1-2 ft. Per. 7-8, st. slightly hairy; ls. dk.-gr. blotched with purp., ov.-lanc., with several sharp teeth near base, scattered hairs on both sides; petioles shaggy, st.-ls. large, sess.; pan. almost corymbose; ped. with 3 bristle-like bracts, woolly, black, gland. hairs; fl.-hd. ovoid, 4-10; involc.-bracts lin., slightly woolly, with strong, black, gland. and a few simp. dusky hairs; fls. lig. yell., smooth; style livid.

Gilmerton.

1186 **prenanthoides** Vill. *Hawkweed.* Riv. bks., &c. 1-3 ft. Per. 7-8, no rad. ls., st. leafy; ls. long, lanc., narr. to base, clasp. with rounded ears, pan. almost corymbose; ped. very gland.-downy; fl.-hds. many, small; involc.-bracts narr., blunt, woolly, with a few black simp. and many black gland. hairs; style dark.

Habbie's Howe, Cramond, Carlowrie, Avonside.

1239 **umbellatum** L. *Narrow-leaved Hawkweed.* Rocky, heathy pl., &c. 1-4 ft. Per. 7-9, no rad. ls., st.-ls. many, lin. or lanc., narr. below, sess., often rough, hairy; pan. leafy umbel., ped. short, dilated at top; fl.-hd. ovate; involc.-bracts blackish gr., broad, blunt, lanc.; style yellow.

Dunbar, Leith, Dalmeny.

boreale Fr. = agg. sp. L.C. xi. *Broad-leaved Hawkweed.* Woods, &c. 2-4 ft. Per. 7-9, no rad. ls.; st. stout, often reddish, hairy, leafy; lr.-ls. long, ovate-lanc., upper ls. sess., shorter, rounded at base; fl.-hd. in loose corymb; ped. hairy, much dilated at top; involc.-bracts black; style dark.

Roslin, Auchindinny, Dalhousie, Arniston, Mortonhall, Colinton, Barnbougle.

sabaudum L. Upper ls. almost cord. at base; ped. less dilated; fl.-hd. clothed with long, white, spread. hairs.

Arniston, Dalhousie, Roslin.

Hervieri A. T. plant rather soft, grey, downy; lr.-ls. rather short; ped. more or less pilose; fl.-hd. gray-green, pilose.

Roslin.

Pilosella Agg. sp. in Sub.-Gen. Pilosella L. C. xi. *Mouse-ear Hawkweed.* Dry bks. 2-12 in. Per. 7-8, creep.; st. slend., leafless; ls. small, rounded-obov., taper. to base, often stalked, few stiff hairs on both sides, woolly beneath; fl.-hd. sol., ovoid, yell., often tinged red on outside; involc.-bracts

clothed fine down, mixed with short, stiff, black hairs; styles yellow.

Dunbar, Crichtoun, Aberlady, Longniddry, Arthur's Seat, Braids, Kaimes, Boghall, Corstorphine, Philipstoun.

1265 **aurantiacum* N. P. *Orange Hawkweed.* Ry.-bks., &c. 9-15 in. Per. 7-8, creep.; st. leafy; ls. ov.-lanc., hairy; fl.-hds. in corymb; invol.-bracts lin., dark; fl. red-orange, style brown; whole plant cov. with brown hairs.

Prestonhall, Gorebridge, Roslin, Auchindinny, Davidson's Mains, Manuel, Carribber.

1267 **colliniforme** N. P. = **pratense** Tausch, &c. *Hawkweed.* Dry bks. Per. 7-8, creep.; st. reddish, 1-3 leaved, hairy below, downy above; ls. dull gr., obov.-lanc., toothed, with scattered hairs; pan. corymbose; fl.-hds. many, obl.; invol.-bracts lin., dk.-gr., woolly; styles yellow.

Dalhousie, Leith, Roslin.

243 HYPOCHERIS L.

1269 **radicata** L. *Long-rooted Cat's-ear.* Past., &c. 6-18 in. Per. 6-9, plant with milky juice; ls. all rad., narr., runcinate, blunt; hispid with stiff hairs on both sides; fl.-hds. large, on long branched peds., which are thickened slightly upwards and have a few scattered, scaly bracts; invol.-bracts many, imbric., obl.; recept.-scales long, narr. ptd., fls. all lig. yell.; fr. beaked, wrinkled; pappus feathery, outer row short, bristle-like.

Haddington, Gullane, Longniddry, Arniston, Roslin, Ratho, Dalmeny, Abercorn, Linlithgow.

244 LEONTODON L. Plant with milky juice; ls. all rad., toothed or pinnfid.; ped. simp. (or slightly branched), usually leafless; fls. all lig. yell.; recept. bare; invol.-bracts 2-3 rows, inner erect, outer small; fr. taper., shortly beaked, inner pappus feathery.

1271 **taraxacoides** Lac. = **hirtum** auct. angl. = **nudicaulis** (L) Banks = **Thrincia hirta** Roth. *Hawkbit, Thrincia.* Grav. past. 3-9 in. Per. 7-8, st. 1-fld.; ls. lanc., coarsely toothed or shortly pinnfid., hispid, with forked hairs; fl.-hd. small, bright yell.; invol.-bracts smooth, 10-12, inner equal, outer small, imbric.; fr. of outer row curved, taper.; pappus of short scales.

North Berwick, Gullane, Leith.

1272 **hispidum** L. = **glabratus** G. & G. = **Apargia hispida** Willd. *Rough Hawkbit.* Past., &c. 6-18 in. Per. 6-9, st. simp.; ls. runcinate, hispid, with stiff, forked hairs; fl.-hd. droop. in bud, large, sol.; ped. slightly swoollen at top; invol.-bracts narr., hairy; fr. striate wrinkled, tapering.

Canty Bay, Longniddry, King's Park, Roslin.

1273 **autumnale** L. = **Apargia autumnalis** Willd. *Autumnal Hawkbit.* Past., &c. 3-24 in. Per. 7-10, ls. lanc., toothed or pinnfid., smooth or with few hairs; ped. branched, with a few scales, and 2 or more fl.-hds.; invol.-bracts obl., smooth or slightly hairy, taper. down to the swollen ped.; fr. striate, wrinkled, taper. to short beak.

Braids, Pentlands.

245 TARAXACUM Hall. Plant with milky juice; ls. all rad. runcinate; fl.-hd. sol.; fls. all lig. yell.; ped. simp., rad., hollow, leafless; invol.-bracts 2 rows,—inner erect, outer recurved; fr. ribbed, rough, with long slend. beak; pappus simp., white, silky.

1274 **vulgare** Schr. = **officinale** Weber. = **dens-leonis** Desf = **Leontodon taraxacum** L. *Dandelion.* Grassy pl. 4-12 in. Per. 3-8, ls. bright gr., rad., varying from lin.-lanc. almost ent. to deeply pinnfid., runcinate; fl. yell.; invol.-bracts lin., thickened near tip; fr. striate, rough at tip, beak long.

Yester, North Berwick, Longniddry, Inveresk, Niddrie, Currie, Kirkliston, Hopetoun, Carribber.

1275 **laevigatum** D. C. = **erythrospermum** Bab. *Dandelion.* Dry pl. 2-6 in. Per. 3-7, ls. dull gr. often glauc., more deeply cut; outer invol.-bracts erect or spread.; fl. paler yell.; fr. reddish-brown.

North Berwick to Luffness, Arthur's Seat, Hunter's Bog, Gorebridge.

1277 **paludosum** Schl. = **palustre** Lam. & D. C. *Marsh Dandelion.* Damp pl. 4-12 in. Per. 6-9, ls. dull-gr., glauc., pinnfid., runcinate, segm. broad; outer invol.-bracts erect or spread, inner thickened near tip.; fr. brown.

Arniston, Pentlands, Ravelrig, Linlithgow, Carribber.

246 LACTUCA L. Leafy herbs with milky juice, smooth or with few stiff hairs; fl.-hd. small, in pan.; fls. all lig. perf. yell.; invol.-bracts narr., imbric., outer small; fr. flattened, beak long, slend.; pappus simp., discoloured, stiff, bristly.

1279 **virosa** L. *Wild Acrid Lettuce.* Wa. pl. 3-5 ft. Bi. 7-8, plant acrid, glauc., rough; ls. spread., obov. toothed, with bristles on midrib beneath; lr.-ls. often black-spotted, upper clasp.; fl.-hd. small, pale yell.; fr. black, beak as long as fruit.

Dunbar, Arthur's Seat, Leith, Corstorphine.

1282 **muralis** Gaertn. *Wall Lettuce.* Walls, &c. 1-3 ft. An. 6-8, smooth, branches slend.; lr.-ls. lyrate, pinnfid., ang., glauc. beneath, thin-stalked, upper ls. narr., ent. or toothed, clasp. with prominent ears; fr. black, beak shorter than fruit.

Aberlady, Musselburgh, Dalkeith, Warriston, Hopetoun, Kirkliston, South Queensferry.

247 SONCHUS L. Succulent plant with milky juice; ls. gen. pinnfid., coarsely toothed; fl.-hds. in corymb; invol.-bracts 2 rows, imbric., unequal; recept. pitted; fls. lig. yell.; fr. much flattened; pappus many rows of simp., white, silky hairs.

1284 **oleraceus** L. *Common Sowthistle.* Wa. pl. 1-3 ft. An. 6-8, st. thick, hollow, smooth except for a few gland. hairs on ped.; ls. ent. or pinnfid., prickly toothed, upper clasp. arrow-shaped, ears short; fl.-hd. small, pale yell.; fr. ribbed, wrinkled.

North Berwick, Longniddry.

1285 **asper** Hill. *Rough Sowthistle.* Wa. pl. 1-3 ft. An. 6-8, ls. darker, less divided than *S. oleraceus*, ears broad, rounded, more prickly; fr. ribbed, not wrinkled.

Gullane, Longniddry, Braids, Comiston, Linlithgow.

1286 **arvensis** L. *Corn Sowthistle.* Cornfields, &c. 3-4 ft. Per. 8-9, st. unbranched below, ang.; lr.-ls. long, runcinate, waved, sharply toothed; upper ls. ent., cord., ears short, rounded; fl.-hd. large (1-2 in.), bright yell.; ped. and invol.-bracts with brown gland. hairs; fr. wrinkled.

Aberlady, Longniddry, Liberton, Slateford, Ratho, South Queensferry.

1287 **palustris** L. *Marsh Sowthistle.* 5-9 ft. Per. 7-8, taller plant, unbranched; lr.-ls. narr., runcinate, minutely toothed; upper ls. ent. arrow-shaped; fl.-hd. lemon-yell.; invol.-bracts and ped. with gland. hairs.

Murrayfield.

248 TRAGOPOGON L. Smooth plant with milky juice, gen. unbranched; ls. long, narr., grass-like, sheathing; fl.-hd. sol.; fls. all lig. invol. simp. 8-10 equal bracts, joined at base, produced to long pts.; fr. striate, beak long; pappus of many rows, feathery, on long stem, forming a cup.

1288 **pratense** L. *Goat's-beard, Jack-go-to-bed-at-noon.* Roadsides. 1-2 ft. Bi. 6-7, ls. smooth, acum. grooved; ped. slightly thickened; fl.-hd. sol., large, yell., closing at noon; invol.-bracts as long as fl.; pappus a feathery cup.

Innerwick, Longniddry, Cockenzie, Comiston, Saughton, Slateford, Ratho, Kirkliston, Carribber.

1289 **minus** Mill. *Small Goat's-beard.* Involucral bracts twice as long as florets.

Canty Bay, Portobello, Granton, Canal Banks, Craiglockhart, Swanston, Hailes, South Queensferry.

42. CAMPANULACEAE.

Bellflower family—Herbs with alter. ent. ls.; showy bluish fl.; calyx and corolla 5-lobed, sta. 5, ovary 2-5 celled, placent. axile; fr. dry capsule crowned by withered calyx.

Key to Genera.

Flowers bell-shaped, ovary short	*Campanula*	254
Flowers wheel-shaped, ovary long . . .	*Legousia*	255

254 CAMPANULA L. Ls. alter., ent. or toothed; fls. in rac. or spike, in short leafy hd., or, rarely, sol.; cal. 5 lobes or

teeth; cor. reg. bell-shaped, with 5 broad or lanc. lobes; sta. inserted within base of cor.; style 2-3-5-cleft; fr. capsule crowned by 5 cal.-teeth.

1298 **glomerata** L. *Clustered Bellflower.* Past. 2-18 in. Bi. 7-8, st. simp., ang., hairy; ls. obl.-lanc. toothed, roughly hairy; lr.-ls. stalked, upper ls. half-clasp.; fl. erect, sess. in term. and axill. clusters in upper ls., cal. hoary, cor. funnel-shaped, violet-blue, downy; fr. short, broad, crowned by leafy cal.-teeth.

North Berwick, Aberlady, Gosford, Longniddry.

1299 **Trachelium** L. *Nettle-leaved Bellflower, Throatwart.* Woods. 1-3 ft. Per. 7-9, st. ang., rough; ls. hairy, coarsely doubly toothed; lr.-ls. on long stalks, broadly heart-shaped; upper ls. small, ovate-lanc.; rac. 2-3-fld. cal.-segm., broad, lanc., hairy; cor. bell-shaped, large, purp.-blue.

North Berwick, Luffness, Musselburgh, Dalkeith, Lasswade, Comiston, Colinton, Carribber.

1300 **latifolia** L. *Giant Bellflower.* Copses. 3-5 ft. Per. 7-8, st. simp. erect., furrowed, leafy, slightly ang.; ls. ovate-lanc., doubly toothed (6 × 2 in.), narr. at base; lr.-ls. stalked; fl. very large, sol., bell-shaped, blue or white, hairy within, cal.-segm. lin.; fr. caps. crowned by long, lanc. cal.-segm.

Gifford, Eskbank, Roslin, Hermitage, Currie, Colinton, Lymphoy, Carlowrie, Carribber.

1301 ***rapunculoides** L. *Creeping Bellflower.* Woods, &c. 1-2 ft. Per. 7-8. Downy plant with runners; st. slightly ang.; ls. rough, unequally toothed; lr.-ls. long-stalked, heart-shaped; upper ls. sess., small; rac. 1-sided; fl. droop., cal.-segm. lin., reflexed, cor. pale-blue.

East Linton, Gullane, Aberlady, Inveresk, Musselburgh, Dalkeith, Boghall, East Craigs.

1302 **rotundifolia** L. *Harebell, "Scottish Bluebell."* Heathy pl. 6-24 in. Per. 7-9, st. slend., smooth; rad. ls. round, cord., disappear. at flowering; st.-ls. lin.. ent.; rac. droop., cor. bell-shaped, with 5 short, broad lobes, blue; cal.-segm. lin.; fr. caps. ovoid, droop.

Aberlady, Arthur's Seat, Kaimes Hill, Pentlands, Carlowrie, Linlithgow.

255 LEGOUSIA Durande. = **SPECULARIA** Heist = **CAMPANULA** L.

1306 **hybrida** Delarbe. *Corn Venus'-looking-glass.* Fields, &c. 6-10 in. An. 7-9, st. erect., ang., nearly simp., hairy; ls. obl. rough, wavy; fl. sess. axill. cal.-lobe longer than the wheel-shaped (rotate) cor.; cor. purp.; fr. caps. 3-ang., long, narr., tapering.

Gullane, Dirleton, Luffness.

43. VACCINIACEAE.

Blaeberry Family—Low, hill shrubs; ls. alter.; fl. sol., pinkish; cal. and cor. 4-5 lobed; sta. 8-10; ovary 4-5 celled; fr. a juicy berry.

Key to Genera.

Corolla urn-shaped or bell-shaped, 4-cleft . .	*Vaccinium* 256
Corolla wheel-shaped (rotate), 4-cleft . . .	*Oxycoccus* 257

256 VACCINIUM L. Low shrubs. Ls. alter.; fl. sol. or 2-3 together, urn-shaped or bell-shaped; cal.-tube short, 4-5-toothed, cor. 4-5-cleft, sta. 8-10, anth. 2-fid; fr. glob., juicy berry crowned by cal., many-seeded.

1307 **Vitis-Idaea** L. *Red Whortle-berry, Cowberry.* Heathy hills. 6-18 in. Per. 6-8, st. procumb., woody, straggling; ls. evergreen, obov., glossy, dk.-gr. above, paler, gland.-dotted below, margin slightly rolled back; fl. in dense, short term. rac., droop.; cor. pink, bell-shaped, 4-spread. lobes; fr. red berry.

Lammermoors, Swanston, Balerno, Pentlands.

1309 **Myrtillus** L. *Blaeberry, Bilberry, Huckleberry, Whortle-berry.* Heaths. 6-24 in. Per. 4-6, st. sharply ang.; ls. decid., ov., toothed, smooth; fl. axill., sol., almost glob., pink, waxy, droop.; fr. glob., glauc., blue-black berry, crowned by short cal.-teeth.

Lammermoors, Roslin, Penicuik, Dalmahoy, Bathgate Hills, Whitburn.

257 OXYCOCCUS Hill.

1310 **quadripetala** Gilib. = **palustris** Pers. = **Vaccinium Oxycoccus** L. *Cranberry.* Peat bogs. Per. 7-8, creep.; st. wiry, rooting; ls. evergreen, small, ov., ent., glossy, dk.-gr. above, very glauc. below, margin rolled back; fl. sol. term. rose, droop. with pair of small bracts below middle of ped.; fr. red glob. berry crowned by 4 short cal.-teeth.

Auchencorth, Pentlands, Currie.

44. ERICACEAE.

Heath Family—Undershrubs or herbs with evergreen ls. oppos. or whorled; fl. small, cal. and cor. 4-5-cleft, sta. 5-10, ovary 3-5 celled; fr. dry capsule (or berry).

Key to Genera.

I. *Undershrubs:*

1. *Sta.* 10; *cor. glob., decid.; fr. 5-celled, dry; ls. alter.* . . . . . *Andromeda* 260
2. *Sta.* 8; *cor. 4-cleft, persist.; fr. 4-celled, dry:*
   (1) *Ca. double, inner petaloid longer than the bell-shaped cor., anthers tailed; ls. oppos., inbricate, lin.* . . . . *Calluna* 261
   (2) *Cal. simp., shorter than the urn-shaped cor., anthers not tailed; ls. gen. whorled, lin.* . . . . . *Erica* 262

II. *Herbs:*

(1) *Sta.* 10; *pet.* 5, *incurved; fr.* 5-celled, *dry; ls. ovate, mostly radical* . . *Pyrola* 267

260 ANDROMEDA L.

1314 **Polifolia** L. *Wild Rosemary, Marsh Andromeda.* Peat bogs. 3-18 in. Per. 6-7, evergreen; st. slend., prostr.; ls. alter., lanc., smooth, glauc. beneath, margin rolled back; fl. in term. rac.; cal. small, 5-lobed; cor. ovoid, pink, enclosing 10 sta.; fr. dry, 5-celled capsule.

Auchencorth.

261 CALLUNA Salisb.

1315 **vulgaris** Hill. Erica D.C. *Heather, Ling.* Heaths. 1-2 ft. Per. 7-9, much branched shrub.; ls. small, oppos., imbric., in 4 rows, spurred, downy; fl. small, droop. in leafy term. rac., pink-lilac or white; cal. 4-cleft, membr., pink-lilac, longer than the 4-cleft bell-shaped, persist. cor. with 4 outer gr. bracts; sta. 8; capsule 4-celled.

Lammermoors, Fala, Glencorse Reservoir, Pentlands, Balerno, Bathgate Hills, Whitburn.

262 ERICA L. Under-shrub, much branched; ls. small, ent., in whorls, edges rolled back; fls. in rac. or cluster, droop.; sep. 4 shorter than cor.; cor. ovoid, glob. or urn-shaped, 4-toothed, persist.; sta. 8; capsule 4-celled.

1317 **Tetralix** L. *Cross-leaved Heath.* Wet heaths. 1-2 ft. Per. 7-9, ls. small, ent., 4 in whorl, lanc. downy above, fringed; fl. rose-pink in 1-sided cluster; sep. lin., downy; ovary downy.

Lammermoors, Fala, Balerno, Pentlands.

1319 **cinerea** L. *Fine-leaved Heath.* Dry heaths. 1-2 ft. Per. 7-9, ls. 3 in whorl, lin. acute, keeled, smooth, tufts of small ls. in axils; fl. in dense, leafy, whorled rac., reddish-purp. or white.

Lammermoors, Arthur's Seat, Balerno, Kirknewton, Craigshall, Cockleroy.

267 PYROLA L. Herbs creep.; st. simp., hard; ls. evergreen, smooth, ovate, mostly rad.; fl. in rac., droop., bracts small, narr.; sep. 5 persist., pet. 5 incurved (spread. at first), sta. 10, style 5-lobed; fr. dry, 5-celled capsule.

1327 **media** Sw. *Intermediate Wintergreen.* Heathy pl. 8-12 in. Per. 6-7, ls. round-oval; fl. milk-white, tinged pink; cal.-segm. ovate, acute; sta. short, incurved; style longer than sta., nearly straight; stig. with 5 erect pts.

Gifford, Tynehead, Juniper Lee, Bilston.

1328 **minor** L. *Small Wintergreen.* Woods. 8-12 in. Per. 6-7, ls. round-oval, on long stalks; fl. in loose rac., pale pink, nearly closed; sta. incurved, equal. style straight; stig. 5-lobed, pointless.

Gifford, Firth, Roslin, Penicuik, Balerno, Meadowbank, Linlithgow.

46. PLUMBAGINACEAE.

Sea-pink Family—Maritime herbs with rad. ls.; fl. small, mostly blue or pink, cal. 5-cleft, pet. 5, sta. 5, styles 5, ovary 1-celled, 1-seeded; fr. small nut.

271 ARMERIA Willd. = **STATICE** L.

1339 **maritima** Mill. = **vulgaris** Willd. *Sea-pink, Thrift, Sea Gilliflower.* Seashore. 2-12 in. Per. 4-9, tufted, rad. ls. many, narr., lin., ent., 1-ribbed; fl.-st. leafless, with glob. hd. of pink or white fls. in membr. sheaths, mixed with chaffy bracts.

Gullane, Aberlady, Longniddry, Dalmeny, Abercorn, Blackness.

47. PRIMULACEAE.

Primrose Family—Herbs with undivided ls. usually rad.; fl. reg. cal., 4-7 cleft, pet. 4-7, sta. 4-7, ovary 1-celled, style 1, with rounded, ent. (capitate) stigma, placent. free-central; fr. many-seeded capsule.

Key to Genera.

I. *Ovary superior:*

1. *Cor. salver-shaped, tube long* . . *Primula* 273
2. *Cor. rotate (wheel-shaped):*
   (1) *Cal. 5-cleft; fl. yell.; ls. oppos., or whorled* . . . . . *Lysimachia* 275
   (2) *Cal. 5-cleft; cor.-tube 0; fl. blue or red; ls. oppos.; fr. "pyxidium"* . *Anagallis* 278
   (3) *Cal. 7-cleft; fl. white; ls. 5-6 in one whorl* . . . . . *Trientalis* 276
3. *Cor. absent:*
   (1) *Cal. pink; oppos. small; plant of seashore* . . . . . *Glaux* 277

II. *Ovary inferior:*

1. *Cor. salver-shaped; tube short; fl. white; ls. rad.* . . . . . *Samolus* 280

273 PRIMULA L. Ls. simp. rad.; fls. in umbel, cal.-tube 5-cleft, cor. salver-shaped, 5-lobed, notched; sta. 5, "dimorphic,"—

on some plants the sta. are included either in the throat of the cor. or half way down it, whilst the style is short in the former case and long in the latter, *i.e.*, "thrum-eyed" or "pin-eyed"; capsule, 5-valved, 10-toothed, many-seeded.

1343 **vulgaris** Huds. *Primrose.* Woods. 4-8 in. Per. 3-5, ls. obl.-ovate taper. downwards, wrinkled, hairy, toothed; fls. in umbel but ped. so short as to pass unnoticed, pedicels long, pink, hairy; cal.-tube sharply toothed; cor. pale-yell., throat contracted, limb flat; fr. capsule half length of calyx.

North Berwick, Gifford, Longniddry, Crichtoun, Roslin, Dalmahoy, Kirkliston, Hopetoun, Carribber.

1344 **veris** L. *Cowslip. Paigle.* Past. 4-12 in. Per. 5-6, ls. ovate, suddenly contracted below, wrinkled; fl. in umbel on long downy ped. with droop. fls. on short pedicels; cal. bell-shaped, with ovate, blunt teeth; cor. funnel-shaped, limb cup-shaped, deep yell. with 5 red spots at base; fr. capsule equal to the inflated calyx.

North Berwick, Gullane, Gifford, Longniddry, Arniston, Abercorn, Kirkliston, Blackness, Carriden.

× **vulgaris** Huds. *Canty Bay.*

1346 **farinosa** L. *Bird's-Eye Primrose.* Moist past. 2-9 in. Per. 5-7, tufted; ls. small (1 in.), obov. cren., gr. above, mealy below; fl. pale lilac with yell. eye, in compact umbel on long ped.; cal.-teeth lin., cor.-lobes distant, narr., deeply notched.

Dolphinton.

275 LYSIMACHIA L. St. erect or trailing; ls. oppos. or whorled; fl. yell., rotate or cup-shaped; cal. 5-cleft; cor. 5-lobed; sta. 5; fr. capsule.

1349 **thyrsiflora** L. *Tufted Loosestrife.* Marshes. 1-3 ft. Per. 6-7, st. erect; ls. sess., oppos., lanc. (2-3 in.); fl. small, yell. dotted orange, in dense, axill. rac.; sep. and pet. narr.; sta. united below in ring.-parts often in sixes.

Canal, Avonbridge.

1350 **vulgaris** L. *Great Yellow Loostrife.* Wet pl. 2-3 ft. Per. 7-8, st. erect; ls. ov.-lanc., oppos., or 3-4 in

whorl; fl. large, yell. dotted orange, in term. and axill. pan.; cor.-lobes broad; sta. united in cup.

Leith, Craigmillar, Blackhall, Carlowrie, Linlithgow, Avonside.

1353 **Nummularia** L. *Moneywort, Creeping-Jenny, Herb-Twopence.* Damp pl. 1-2 ft. Per. 6-7, st. prostr., rooting at joints; ls. round, oppos., shortly stalked, smooth; fl. large, yell., sol., or in pair, axill.; sep. ov.-acute; cor. concave, with 5-ovate lobes.

Dalkeith, Arniston, Roslin, Kirkliston, Philipstoun, Linlithgow.

1354 **nemorum** L. *Wood Loosestrife, Yellow Pimpernel.* Woods. 3-12 in. Per. 5-8, st. prostr., creep., slend.; ls. ov.-acute, oppos. shortly stalked; fl. small, sol., bright yell., sep. lin.; sta. free.

Dunglass, Gifford, Borthwick, Hawthornden, Roslin, Penicuik, Currie, Almondell, Carlowrie, Carribber.

276 TRIENTALIS L.

1355 **europaea** L. *Chickweed Wintergreen.* Woods. 2-6 in. Per. 6-7, plant small, smooth, slightly creep.; st. wiry, slend.; *ls. 5-6 in whorl at top of stem*, obl.-obov.; fl. 1-4 on slend. ped., delicate, white with yell. ring; cal.-segm. 7, narr.; cor. rotate, without tube, usually 7-lobed; sta. 7; fr. capsule 5-valved (valves soon fall), seeds netted.

Shippath Dean.

277 GLAUX L.

1356 **maritima** L. *Sea Milkwort.* Salt marshes. 3-6 in. Bi. 6-7, st. procumb.; ls. oppos., ov.-ent., smooth, fleshy; fl. pink, sol. sess. axill.; cal. 5-lobed, *cor. absent;* fr. capsule.

Gullane, Luffness, Longniddry, Dalmeny, Abercorn, Blackness.

278 ANAGALLIS L. St. procumb., creep.; ls. oppos.; fl. axill., red, blue or pink; cal. deeply 5-cleft; sep. narr.; cor. 5-cleft, rotate or bell-shaped; st. 5; fr. capsule.

1357 **arvensis.** *Scarlet Pimpernel, Poor Man's Weather-glass.* Cult. gr. 6-12 in. An. 6-11, st. prostr.; ls. ov. sess.; fl. axill., sol., ped. long, bent back in fr.; pet. scarlet, fringed with gland. hairs—expands only in fine weather.

North Berwick, Tynehead, Gullane, Luffness, Longniddry, Dalmeny, South Queensferry, Abercorn, Carlowrie.

1358 **foemina** Mill = **coerulea** Schr. *Blue Pimpernel.* Wa. pl. 6-12 in. An. 6-11, differs from *A. arvensis* in usually having blue fl. without gland. hairs.

Gullane, Portobello, Leith, Slateford.

1359 **tenella** Murr. *Bog Pimpernel.* Bogs. 2-4 in. Per. 7-8, plant delicate, slend.; ls. small, round, oppos., stalked; fl. axill., stalked, funnel-shaped, pink, deeply 5-cleft; sta. with very woolly filament.

Dirleton, Gullane, Aberlady, Eskside, Hunter's Bog, South Queensferry, Manuel, Avonside.

280 SAMOLUS L.

1361 **Valerandi** L. *Brookweed, Water Pimpernel.* Wet pl. 4-12 in. Per. 6-9, rad. ls. in rosette; ls. alter., obov., blunt, fleshy; rac. many-fld., green bract above middle of pedicel; fl. very small, white, salver-shaped, cor.-tube short; sta. 5 alter. with 5 scale-like staminodes; fr. capsule.

Gullane, Aberlady, South Queensferry.

48. OLEACEAE.

Ash Tree Family—Trees or shrubs with oppos. ls.; fl. small, cal. 4-toothed or 0, cor. 4-lobed or 0, sta 2, ovary 2-celled; fr. berry or samara.

Key to Genera.

Trees—ls. pinn., fr. dry—samara . . .	*Fraxinus*	281
Shrubs—ls. simp., fr. berry	*Ligustrum*	282

281 FRAXINUS L.

1362 **excelsior** L. *Ash.* Hedgerows. 50-80 ft. Per. 4-5, bark ash-coloured, twigs thick, turning upwards at end; ls. large, pinn., lft. 7-11 lanc. toothed; fl. before ls. in

dense clusters, surrounded at base by small woolly scales, sep. 0, pet. 0, anthers 2, sess. purp., style 1; fr. a single samara ("winged nut").

Haddington, Gosford, Longniddry, Roslin, Blackford, Currie Carlowrie, Hopetoun.

282 LIGUSTRUM L.

1363 **vulgare** L. *Privet.* Hedges, woods, &c. 4-10 ft. Per. 6-7, shrub; ls. ellip.-lanc., ent., oppos., smooth, nearly evergreen; fl. in small close term. pan.; cal. cup-shaped, 4-toothed; cor. funnel-shaped, 4-lobed; fr. purp.-black, glob. berry.

Yester, Gosford, Port Seton, Oxenford, Dalhousie, Hawthornden, Carlowrie, Dundas, Hopetoun.

49. APOCYNACEAE.

Periwinkle—Decumbent under-shrub with oppos., ent., evergreen ls.; fl. blue or white, salver-shaped; cal. and cor. 5-cleft, sta. 5, carpels 2, style 1; fr. 2 follicles.

283 Vinca L. Ls. evergreen, oppos., ent.; fl. blue or white, sol. axill., cal.-segm. 5 narr.; cor. with cylind. tube, 5-*ang. at mouth*, and flat spread. limb with 5 broad *oblique* lobes, sta. 5 in tube, ovaries 2, distinct below, but united in 1 style; fr. 2 follicles.

1364 **major* L. *Great Periwinkle.* Hedges, &c. 3-6 ft. Per. 4-6, st. decumb., trailing; fl.-st. nearly erect; ls. (2-4 in.) ov.-cord. edges, fringed with hairs; cal.-segm. fringed with hairs, cor. (1-2 in.).

Arniston, Roslin, Portobello, Corstorphine, Colinton, Dundas, Linlithgow.

1365 **minor** L. *Lesser Periwinkle.* Copses. 1-2 ft. Per. 4-5, st. prostr. rooting; ls. (1 in.) ellip., lanc., smooth, margin of ls. and cal.-segm. without fringe of hairs fl. (1 in.).

Prestonhall, Dalkeith, Newbattle, Dryden, Roslin, Auchindinny, Arniston, Penicuik, Colinton, Hopetoun.

50. GENTIANACEAE.

Gentian Family—Herbs with oppos. or alter. ls; reg. fls. cal. and cor. 4-8 cleft, sta. 4-8, ovary 1-2-celled, placent. parietal; fr. capsule.

Key to Genera.

I. *Ls. opposite:*

1. *Flower pink, anther twisted, style decid.* . *Erythraea* 286
2. *Flower blue, anther straight, style persist.* *Gentiana* 288

II. *Ls. alternate:*

1. *Flower whitish, fringed inside; ls. 3-nate* *Menyanthes* 289

286 ERYTHRAEA Neck. = **CENTAURIUM** Hill. St. ang.; ls. oppos. fl. in cyme; cal. deeply 5-fid, cor. funnel-shaped, 5-lobed, pink; sta. 4-5, anthers becoming spirally twisted, style simp. decid.; stig. 2; fr. capsule.

1368 **Centaurium** Pers. = **Centaurium umbellatum** Gilib. *Centaury.* Dry past., &c. 6-18 in. An. 6-9, st. square, simp. below, much branched above; ls. ellip.-obl., smooth, ribbed, oppos.; fl. pink, in term. cymes, open only in fine weather, cal. half as long as cor.-tube.

Yester, Gullane, Roslin, Auchindinny, Slateford, Humbie Qu., Kirkliston.

(*c*) **capitata** Koch. St. short; ls. ovate; fl. in compact head.

Gullane.

288 GENTIANA L. Ls. oppos., sess. ent.; fl. blue, funnel or salver-shaped; cal. tubular, ang., deeply 5-cleft; cor.-tube cylind., limb spread., 4-5 lobed, style persist., stig. 2, capsule 1-celled.

1381 **campestris** L. *Field Gentian.* Grassy pl. 3-12 in. Bi. 8-9, st. erect, much branched; ls. ov.-lanc.; fl. blue; cal. 4-cleft, 2 outer segm. large ovate; cor. 4-cleft, with fringe of hairs in throat.

North Berwick, Gifford, Gullane, Cockenzie, Pentlands.

1385 **Amarella** L. = **axillaris** Reichb. *Autumn Gentian, Fellwort.* Past. 2-12 in. Bi. 8-9, st. much branched, square, leafy; ls. ovate or lanc.; fl. purp.-blue, cal. 5-cleft, segm. all lin.; cor. 5-cleft (rarely 4-cleft), cal. rather shorter than cor.-tube, cor.-throat fringed with long hairs.

North Berwick to Luffness, Gosford.

289 MENYANTHES L.

1386 **trifoliata** L. *Bogbean, Buckbean, Marsh Trefoil.* Bogs. 4-12 in. Per. 5-7, aquatic, creep. herb; st. short; ls. in dense tuft, sheath. at base, 3-nate, lft. obl. (1-1½ in.); fl. in obl. rac. on long thick ped.; pet. 5, fleshy, white, tinged pink, cov. with white lacy fringe.

Aikengall Moss, Gullane, Aberlady, Duddingston, Pentlands, Ravelrig, Ratho, Linlithgow, Philipstoun.

51. POLEMONIACEAE.

Jacob's Ladder—Herbs with pinn. ls.; fl. reg., blue or white, cal. 5-cleft, cor. 5-lobed, sta. 5, ovary 3-celled; fr. many-seeded capsule.

291 POLEMONIUM L.

1388 **coeruleum** L. *Jacob's Ladder, Greek Valerian.* Copses. 1-3 ft. Per. 6-7, st. ang., hollow; ls. smooth, pinn., 13-23 lfts.; fl. blue or white in term. cluster; cor. rotate; sta. lie on one side of fl.; fr. capsule.

Arniston, Craigmillar, Swanston, Balerno, Dalmeny, South Queensferry.

52. BORAGINACEAE.

Forget-me-not Family—Herbs with alter., simp., rough, ls.; fl. showy in scorpioid or helicoid cymes; cal. and cor. 5-lobed, sta. 5, style 1, carpels 2, ovary deeply 4-lobed; fr. carcerulus—splitting into 4 nutlets.

Key to Genera.

I. *Throat of cor. closed with scales:*
  1. *Stamens included:*
    (1) *Cal. equally 5-cleft; nutlets with hooked bristles* . . . . *Cynoglossum* 292

    (2) *Cal. 5-lobed with intermed. teeth; nutlets flat, gran.* . . . . *Asperugo* 293
    (3) *Cor. bell-shaped, tube short, straight* *Symphytum* 294
    (4) *Cor. funnel-shaped, tube straight* . *Anchusa* 296
    (5) *Cor. funnel-shaped, tube curved, limb, oblique* . . . . . *Lycopsis* 297
    (6) *Cor. salver-shaped, lobes blunt* . *Myosotis* 300
  2. *Stamens protruding:*
    (1) *Cor. rotate, lobes pointed, anthers in cone* . . . . . *Borago* 295

II. *Throat of corolla naked:*
  1. *Cor. reg., sta. included:*
    (1) *Cal. tub., long* . . . . . *Pulmonaria* 298
    (2) *Cal. short, tube short or absent* . *Lithospernum* 301
  2. *Cor. irreg,; sta. protruding* . . *Echium* 302

292 CYNOGLOSSUM L.

1389 **officinale** L. *Common Hound's Tongue.* Wa. pl. 1-2 ft. Bi. 6-7, ls. large, hoary with rough adpressed hairs, lr. ls. ellip. stalked, upper ls. lanc. half-clasp.; fl. small, dull red-purp., veined, in forked cymes; cal. deeply 5-cleft, cor. funnel-shaped, tube short, mouth closed by promin. blunt scales, sta. included; fr. 4 flat roundish nutlets cov. with hooked bristles.

Gullane, Aberlady, Longniddry, Port Seton, Roslin, Carriden.

293 *ASPERUGO* L.

1391 **procumbens* L. *Madwort.* Wa. pl. 6-18 in. An. 6-8, st. procumb., prickly, ang.; ls. obl., rough, with curved and hooked bristly hairs; lr.-ls. stalked, upper sess., those under fl. almost oppos.; fl. small, blue, sol., axill.; cal. bell-shaped, 5-lobed, with teeth between the lobes; fr. 4 flat gran. nutlets.

Dunbar, Dirleton, Gullane, Luffness, Portobello, Leith, Slateford.

294 SYMPHYTUM L. Coarse hairy plant with purp., yell. or rarely white fl. in term. cymes; cal. deeply 5-cleft; cor. tub., enlarged above middle, where it is closed by 5 awl-shaped fringed scales in a cone, and tipped with 5 small, spreading teeth; sta. very short; nutlets ovate, smooth.

1392 **officinale** L. *Common Comfrey.* Wet pl. 2-4 ft. Per. 5-7, st. winged between the nodes, rarely rough; lr.-ls. ovate-lanc., narr. into petiole, upper ls. narr.-lanc., with broad decurrent base; cal.-segm. acum., hispid in fr., cor. white or yellowish (*S. ochroleucum* D.C. which has not been found in the Lothians) or purplish (**S. pupureum** Pers = **S. patens** Sibth.) anther longer than filam., nutlets shining black.

S. **patens** Sibth. = **purpureum** Pers. *Common Purple Comfrey.*

Fisherrow, Monktonhall, New Hailes, Blackhall, Cramond, Ratho, Dalmeny, South Queensferry, Niddry Burn, Carlowrie, Almondell.

1393 **peregrinum* Ledeb. = *uplandicum* Nym. *Prickly Comfrey.* Wa. pl. 2-4 ft. Per. 6-8, st. cov. with strong rough bristles and reflexed spines rising from swollen base, not winged, but ls. have half-winged petioles; ls. hairy, with bristles on underside of veins, ovate-lanc., acute; fl. pinkish in bud, bluish-pink later, cal. long, deeply cleft, ptd.; style bent below tip—considered a hybrid between *S. officinale* and *S. asperrimum.*

East Linton, North Berwick, Longniddry, Firth, Gilmerton, Straiton, Braids, Comiston, Colinton, Redhall, Bavelaw, Cramond, Dalmahoy, Carlowrie, South Queensferry.

asperrimum Donn, Bieb, Sims (not Bab.) = *asperum* Lepech (= *majus* Gueld = *echinatum* Ledeb.) *Rough Comfrey.* Wa. pl. 2-3 ft. Per. 6-8, st. with curved prickles, not winged; upper ls. oppos. cord.-ovate or lanc., stalked, very rough; fl. reddish-brown in bud, then blue; cal. short, shortly 5-cleft (to middle only), lobes blunt; limb of cor. bell-shaped.

Bilsdean, Warriston, Carlowrie.

1394 **orientale* L. not Fr. = *Jacquinianum* Tausch. *White Comfrey.* Plantations, &c. 1-2 ft. Per. 5-7, plant thickly cov. with soft hairs; ls. long, upper ls. upright, pointed forward; fl. pure white with long cal.-tube divided only a quarter down.

Calton Hill, Denham Green, Colinton, Carlowrie, Dundas, Philipstoun.

1395 **tuberosum** L. = **nodosum** Sch. = **bulbosum** Schur. = **angustifolium** Kern. *Tuberous Comfrey.* Shady pl. 1-2 ft. Per. 5-7, root tuberous; ls. ovate, stalked, upper ls. almost sess., very slightly decurrent; fls. few, yellowish-white.

North Berwick, Gifford, Gullane, Inveresk, Blackford, Ratho, Dalmeny, Carlowrie, Carribber.

295 *BORAGO* L.

1396 **officinalis* L. *Borage.* Wa. pl. 1-2 ft. Bi. 6-7, plant very bristly with bulbous hairs; ls. obov., narr. at base to long stalk; upper ls. narr., eared at base; fl. bright blue in term. droop. clusters; cal. deeply 5-cleft; cor. rotate, tube very short, closed by short scales; cor.-segm. ovate.-acute, spread.; sta. 5, dk.-purp., anthers form. erect cone in centre.

North Berwick, Leith, Craigmillar, Linlithgow.

296 ANCHUSA L. Coarse hairy plant; fl. of intense blue in 1-sided cymes with bract under each fl.; cal. deeply 5-cleft, cor. funnel-shaped with straight tube closed by scales, limb spread., 5-lobed; sta. included; nutlets ang., wrinkled.

1397 *officinalis* L. *Common Alkanet.* Wa. pl. 1-2 ft. Per. 6-8, st. ang.; ls. long, lanc., stalked; cymes 1-sided; fl. nearly sess., bracts ovate-lanc.; cal.-segm. hairy on both sides, narr., longer than tube.

Gullane, Aberlady, Musselburgh, Leith.

1398 **sempervirens.** *Evergreen Alkanet.* Roadsides, castle ruins. 1-3 ft. Per. 5-7, ls. ovate, lr.-ls. long-stalked; fl. in short, leafy, long-stalked *axill.* clusters, bracts minute, lanc.; cal.-segm. hairy on outside only; cor.-limb flatter.

Beil, Dirleton, Borthwick, Craigmillar, Crichtoun, Lothianburn, Carlowrie, Niddry, Blackness.

297 LYCOPSIS L.

1399 **arvensis** L. = **Anchusa arvensis** Bieb. *Field Alkanet or Small Bugloss.* Cult., sandy gr., &c. 6-18 in. An. 6-8, very rough, with bulbous hairs; st. procumb. at base; ls. obl.-lin., wavy, often toothed, lr.-ls. stalked, upper sess. or

clasp. ; fl. small, blue, in 1-sided cymes. ; *cor.-tube curved*, cal. deeply 5-cleft, erect, nutlets wrinkled.

North Berwick, Gullane, Saltoun, Longniddry, King's Park, Lasswade, Comiston, Corstorphine, Carlowrie, Kirkliston.

298 PULMONARIA L.

1401 ***officinalis** L. *Lungwort.* Plantations, &c. 12-18 in. Per. 5-6, rad. ls. tufted, ovate, coarsely hairy, spotted with pale gr. ; upper ls. shorter, sess. ; fl. in term. forked cyme ; cal. very hairy, cor. pink-purp., throat not closed by scales ; sta. included ; nutlets smooth.

Arniston, Prestonhall, Currie, Carlowrie (also a white var.).

300 MYOSOTIS L. St.-ls. obl.-lin., rad.-ls., broader, stalked ; fl. small, usually blue in one-sided cymes ; cal. deeply 5-cleft (except in *M. palustris*), cor. salver-shaped, tube short, closed by 5 scales, limb 5-fid, blunt ; sta. includ. nutlets, smooth, glossy.

1404 **caespitosa** Schultz. *Forget-me-not, Tufted Water Scorpion-grass.* Wet pl. 4-18 in. Per. 6-8, st. round, hairs adpressed ; ls. shining gr. ; fl. sky-blue ; cor. scarcely longer than cal., limb slightly concave, lobes ent. ; cal.-teeth narr.-lanc., open in fr., cal.-hairs straight, adpressed.

Gifford, Gullane, Aberlady, Duddingston, Auchindinny, Roslin, Manuel, Humbie Reservoir, Niddry.

1405 **palustris** Hill. *Forget-me-not, Water Scorpion-grass.* Strs. 1-2 ft. Per. 6-8, st. ang., hairs spread. ; ls. blunt, shining, cor. sky-blue with yell. eye, larger lobes notched ; cal. never divided below middle, teeth open in fr. ; cal.-hairs straight, adpressed.

Fala, Duddingston, Dalmahoy, Hopetoun, Avonside.

(*b*) **strigulosa** Reichb. 6-12 in. St. not ang., hairs very plentiful, adpressed ; ls. less blunt ; fl. small.

Tynehead, Duddingston, Roslin, Mid-Calder.

1406 **repens** Don. *Creeping Water Scorpion-grass.* Boggy pl. 6-12 in. Per. 6-8, st. slightly ang., hairs spread., stolons above ground, cor. pale blue, lobe notched, cal. divided to mid., open in fr., cal.-hairs straight, adpressed.

Pentlands, Linlithgow.

1408 **sylvatica** Hoffm. *Wood Scorpion-grass.* Woods. 1-2 ft. Per. 6-8, roughly hairy ; rad.-ls. on short dilated stalks ; ls. obl.-lanc. ; fl. large, blue, flat, lobes notched ; cal. deeply 5-cleft, rounded below, cov. with hooked bristles, closed in fruit.

Gifford, Prestonhall, Inveresk, Roslin, Arniston, Dalkeith, Dalhousie, Penicuik, Carribber.

1409 **arvensis** Hill. = **scorpioides** L. *Field Scorpion-grass.* Cult. gr., &c. 6-18 in. An. 5-9, lr.-ls. obov. blunt, upper ls., obl. acute ; fl. small, cor. concave ; cal. cleft to middle, segm. narr., erect, closed in fr., cov. with spread. hooked bristles.

Haddington, Gullane, Longniddry, Inveresk, Roslin, Rullion Green, Kirkliston, Humbie, Manuel.

1410 **collina** Hoffm. *Early Scorpion-grass.* Dry sandy pl. 1-8 in. An. 4-5, small, slend., hairy plant ; ls. in rad. tufts ; fl. bright blue in slend. spike (often with 1 distant fl.), cal. 5-cleft, segm. spread., open in fr., rounded on 1 side.

North Berwick, Gullane, Aberlady, Longniddry, Roslin, Blackford, Cramond Island, Dalmeny, Hopetoun.

1411 **versicolor** Sm. *Changing-colour Scorpion-grass.* Dry sandy pl. 1-10 in. An. 4-7, st. simp., erect, with spread. tuft of rad. ls., upper ls. narr., obl., rather acute, often oppos. ; fl. very small, yellow, changing to blue ; cor.-tube long ; cal. obl., longer than pedicel, closed in fruit.

North Berwick, Gullane, Gosford, Roslin, Rullion Green, Balerno, Dalmahoy, Carlowrie.

301 LITHOSPERMUM L. Plant mostly hairy, with leafy st. ; fls. in one-sided cymes, cal. deeply 5-cleft ; cor. funnel-shaped, with straight tube, not closed by scales, limb spread, shortly 5-lobed ; sta. included, nutlets stony.

1413 **officinale** L. *Common Gromwell, Greymill.* Wa. pl. 1-3 ft. Per. 7-9, st. erect, rough ; ls. lanc.-acute, veined, with bulbous adpressed hairs above, hairy beneath ; fl. white or gr.-yell. ; fr. whitish, glossy.

Buckstone, near Edinburgh, Leith, Slateford.

1414 **arvense** L. *Corn Gromwell, Bastard Alkanet, Salfern.* Wa. pl. 1-2 ft. An. 5-7, st. erect; ls. lanc., with bulbous adpressed hairs on both sides; fl. small, white; nutlets gray, wrinkled.

Drem, Musselburgh, Portobello, Leith, Slateford, Kirkliston.

302 ECHIUM L.

1415 **vulgare** L. *Viper's Bugloss.* Dry pl. 1-3 ft. Bi. 6-7. Large, rough, bristly plant, rad. ls. stalked, spread., soon withering; st.-ls. lin.-lanc., sess.; fl. showy, in curved 1-sided cymes, bright rose, changing to bright blue, with unequal, protruding sta.; cal. deeply 5-cleft; cor. funnel-shaped, tube open, lobes unequal; nutlets wrinkled.

North Berwick, Gullane, Luffness, Crichtoun, Straiton, Arthur's Seat, Craigiehall, Kirkliston.

53. CONVOLVULACEAE.

Bindweed Family.—Herbs gen. climb. by twining st.; (1) ls. alter.; fls. showy, cal. and cor. 4-5 lobed; sta. 4-5, ovary 2-4 celled; fr. capsule; or (2) a leafless parasite, cal. 4-9 cleft.

Key to Genera.

I. *Green-leaved plants:*

1. *Bracts 2 large, around cal., stig. ovate* . *Calystegia* 303
2. *Bracts minute, distant from fl., stig. slender* *Convolvulus* 304

II. *Leafless parasite, cal. 4-9 cleft* . . . *Cuscuta* 305

303 CALYSTEGIA Br. Twining st.; ls. alter.; fl. large, sol. axill., bracts large, surround. cal., sep. 5, cor. bell-shaped, style, 2-lobed; fr. 4-seeded capsule.

1417 **sepium** Br. = **Convolvulus sepium** L. *Great Hooded Bindweed.* Hedges. 3-6 ft. Per. 6-8, st. long, climb.; ls. arrow-shaped, with broad, ang., basal lobes; ped. square, 1 fld.; cor. very large, white trumpet-shaped, 5-plaited, 5-lobed; bracts 2, large, ov.-cord., leafy, completely surrounding calyx, stig. oblong.

North Berwick, Longniddry, Levenhall, Inveresk, Lasswade, Ecclesmachan, Almondside, Kirkliston, Linlithgow.

1418 **Soldanella** Br. = **Convolvulus Soldanella** L. *Sea Bindweed.* Sea sand. 6-12 in. Per. 6-8, st. short, procumb.; ls. small, kidney-shaped, slightly ang., fleshy; bracts large, ovate, shorter than cal.; fl. very large, pink with yell. stripes.

Tynninghame to Belhaven.

304 CONVOLVULUS L.

1419 **arvensis** L. *Small Corn Bindweed.* Cult. gr., &c. 6-30 in. Per. 6-8, st. twining, prostr.; ls. arrow-shaped with ptd. basal lobes; ped. 1-3 fld.; cor. variegated pink and white, open only in sunshine; bracts minute, distant from flower.

Gullane, Aberlady, Humbie Qu., Kirkliston, Carribber.

305 CUSCUTA L.

1421 **Epithymum** Murr. *Lesser Heath Dodder.* Heaths. 6-24 in. An. 8-9, leafless parasite growing on heath, whins, &c. St. thread-like; fl. in small, glob. hd.; cal. reddish, shorter than cor.-tube; cor. very small, white, bell-shaped, lobes ptd., spread., scales in throat prominent, nearly closing it, style and sta. protruding.

Hedderwick, Lammerlaw, Longniddry, Dalkeith.

54. SOLANACEAE.

Nightshade Family.—Herbs with alter. ls., sometimes with smaller leaf at base; fl. sol. or in forked cyme, cal. 5-fid, cor. 5-fid; sta. 5, ovary 2-celled, placent. axile; fr. a many-seeded berry or capsule.

Key to Genera.

1. *Fruit, a berry, corolla rotate, anthers in cone* . *Solanum* 306
2. *Fruit, a capsule, corolla funnel-shaped, yellowish* *Hyoscyamus* 310

306 SOLANUM L. Ls. alter; fl. in cyme; cal. 5-cleft; cor. rotate, tube very short, segm. reflexed, purp. or white; yell. anthers meet in cone around style; fr. a many-seeded berry.

1423 **Dulcamara** L. *Woody Nightshade, Bittersweet.* Hedges by sea, &c. 2-6 ft. Per. 6-8, st. shrubby, flex., climb.; ls cord.-ov stalked; upper-ls. eared; fl. droop., small, purp., with 2 green spots on each segm. and yell. cone of anthers in centre; fr. a red oval berry.

East Linton, Haddington, Longniddry, Port Seton, Leith, Craigmillar, Juniper Lee, Linlithgow.

1424 **nigrum** L. *Black Nightshade.* Wa. pl. 6-24 in. An. 6-11, st. gr. ang.; ls. ov., wavy or coarsely toothed; fl. small, white, in close little cyme on short ped., anthers yell., meet. in cone; fr. a black glob. berry.

Leith, Bo'ness.

310 HYOSCYAMUS L.

1428 **niger** L. *Henbane.* Wa. pl., near sea. 1-3 ft. Bi. 6-9, plant downy, viscid, with nauseous smell; ls. large, obl., wavy, irreg. pinnfid.; upper-ls. clasp.; fl. funnel-shaped, nearly sess. in 1-sided leafy spikes; cal. bell-shaped, persist.; cor.-tube short, limb spread., lobes blunt, dingy yell., with purp. veins and dark eye; sta. 5 on one side; fr. a many-seeded capsule opening by lid.

Dunbar, Tynninghame, North Berwick, Gullane, Aberlady, Longniddry, Prestonpans, Borthwick, Slateford, Kirkliston.

55. SCROPHULARIACEAE.

Foxglove Family—Herbs with alt. or oppos. ls., showy, usually irreg., 2-lipped fl.; cal. 4-5 fid; cor. 4-5 lobed; sta. 2-4-5; ovary 2-celled, placent. axile; fr. many-seeded capsule.

Key to Genera.

I. *Stamens 5, corolla rotate; ls. alter.* . . *Verbascum* 311

II. *Stamens 4:*
A. *Calyx 5-cleft:*
1. *Calyx tubular:*
(1) *Corolla personate (closed), spurred* *Linaria* 312
(2) *Corolla personate, pouched* . . *Antirrhinum* 313
(3) *Corolla globose; ls. oppos.* . . *Scrophularia* 314
(4) *Corolla ringent (gaping); ls. oppos.* *Mimulus* 315

(5) *Corolla campanulate (bell-shaped); ls. narr. rad.* . . . . *Limosella* 316
(6) *Corolla glove-shaped; ls. alter.* . *Digitalis* 318
2. *Calyx inflated; ls. alter.* . . *Pedicularis* 322
B. *Calyx 4-cleft; ls. oppos.:*
(1) *Cor.-upper-lip 2-lobed, spread.*. . *Euphrasia* 320
(2) *Cor.-upper-lip entire, arched* . . *Bartsia* 321
(3) *Cor.-upper-lip flattened; cal. inflated* *Rhinanthus* 323
(4) *Cor.-upper-lip flattened; cal. tubular* *Melampyrum* 324

III. *Stamens 2:*
(1) *Corolla unequally 4-lobed; ls. oppos.* *Veronica* 319

311 VERBASCUM L. Large woolly plant; ls. alter.; fl. in spikes; cal. deeply 5-cleft; cor. wheel-shaped, segm. unequal, spread., tube very short; sta. 5, gen. unequal (2-3, hairy at base); fr. many-seeded, ovoid capsule.

1430 **Thapsus** L. *Great Mullein, Aaron's Rod, High-Taper.* Dry pl. 1-4 ft. Bi. 6-8, very woolly; ls. obl., cren., narr. into 2 st.-wings, flannel-like on both sides; fl. yell. in dense club-like spike; stamen hairs white (2 longer sta., smooth).

Dunglass Dean, East Linton, Dirleton, North Berwick, Dalkeith, Leith, Dalmeny.

1433 **nigrum** L. *Black Mullein.* Roadsides. 1-3 ft. Bi. 6-10, st. ang.; ls. not decurr., obl.; lr.-ls. long-stalked, doubly cren., almost smooth above, slightly woolly beneath; upper-ls. cord., ov., almost sess.; fl. small, bright yell., clustered in each bract of simp. long spike; sta. equal., hairs purple.

Gullane, Gosford, Longniddry, Cockenzie, Eskside, Leith.

312 LINARIA Hill. Ls. alter., sometimes whorled; fl. sol. or in spikes; cal. deeply 5-cleft; cor. personate, with palate quite closing mouth of tube, spurred at base; lr.-lip 3-cleft; fr. capsule.

1436 **Cymbalaria* Mill. *Ivy-leaved Toadflax.* Walls. 6-24 in. An. 5-9, creep.; st. slend. root; ls. roundish, 5-lobed, smooth; fl. long-stalked, sol., pale blue with yell. palate, spur rather short, on axill. ped., recurved in fruit.

Beil, Dirleton, Arniston, Dalkeith, Dalhousie, Craigmillar, Colinton, Dalmeny, Carlowrie, South Queensferry.

1441 **purpurea* Mill. *Purple Toadflax.* Walls. 1-3 ft. Per. 7-8, ls. long., lin., lr.-ls. irreg. in 4's; fl. in long narr. rac.; sep. lin., short; cor. purp. or yell. with purp. lips.

Levenhall Qu., Craigmillar Qu., Duddingston.

1442 **repens** Mill. *Creeping Toadflax.* Banks near sea. 1-2 ft. Per. 7-9, st. decumb.; ls. lin., glauc., lr.-ls. whorled, upper alter.; fl. small, cal.-segm. lanc.; cor. bluish-white with dark veins; spur short, conical.

Prestongrange, Musselburgh, Duddingston, Leith, Warriston.

1443 **vulgaris** Mill. *Yellow Toadflax.* Wa. pl. 1-3 ft. Per. 7-10, ls. lin., crowded, glauc.; fl. in dense imbric. rac.; cal.-segm. ovate-acute; cor. large, yell. or cr.-white, with orange palate; spur long, pointed.

Drem, Aberlady, Longniddry, Inveresk, Carrington, Blackhall, Ratho, Kirkliston, Humbie Reservoir, Linlithgow.

1444 **minor** Desf. = **viscida** Moench. *Small Toadflax.* Wa. pl. 4-15 in. An. 5-10, ls. lin. lanc., blunt, gland. downy; fl. very small, sol., axill. long-stalked; cor. purp. with yell. lip; spur short, conical.

Leith, Ratho, South Queensferry, Kirkliston.

313 ANTIRRHINUM L. Lr.-ls. often oppos., upper alter.; fl. in axils of upper ls.; cal. deeply 5-cleft; cor. 2-lipped, pouched on lower side, mouth of broad tube closed by palate; fr. capsule.

1445 **majus* L. *Snapdragon, Calve's Snout.* Walls. 1-2 ft. Per. 7-9, st. stout, woody; ls. lanc.; rac. dense; cal-segm. ov., short; cor. purp.-red or white, upper lip 2-cleft.

Duddingston, Roslin, Craigmillar, Arthur's Seat, Leith, Slateford, South Queensferry, Linlithgow.

314 SCROPHULARIA L. Plant strong-smelling; st. ang.; ls. oppos.; fl. dingy purp. or yell. in small loose cymes; cal. with 5 rounded lobes; cor. glob., shortly 2-lipped; sta. 4 with scale-like staminode on upper lip; fr. capsule.

1447 **aquatica** L. *Water Figwort, Water Betony.* Wet pl. 2-4 ft. Per. 7-9, st. 4-winged; ls. smooth, blunt-cord., toothed; cyme dense, 8-15 fld., bracts lin., blunt; cal.-segm. round with broad membr. edge; staminode kidney-shaped, ent.; capsule ovoid, pointed.

Haddington, Musselburgh, Blackford, Gogar Burn, Hopetoun.

1448 **alata** Gilib. = **Ehrharti** Stev. = **umbrosa** Dum. *Broad-winged Water Figwort.* Wet pl. 2-5 ft. Per. 7-9, plant clear bright green; st. broadly winged; ls. ov.-lanc., acute, sharply toothed, smooth; cyme spread., 4-8 fld., bracts large, leaf-like; cal.-segm. with broad membr. edge; fl. dk.-purp.; staminode 2-lobed; capsule blunt, nearly globose.

Polton, Craigiehall.

1449 **nodosa** L. *Knotted Figwort.* Woods. 1-2 ft. Per. 7-9, st. sharply 4-ang. with knotty tubers at base; ls. large, ov.-acute, doubly toothed, smooth; cymes loose, bracts small, lanc., acute; fl. gr.-purp., upper-lip darker; cal.-segm. with narr. membr. edge; staminode broad, notched; capsule ovate.

Yester, Gosford, Longniddry, Musselburgh, Roslin, Ratho, Carlowrie, Kirkliston, Avonside.

1451 **vernalis* L. *Yellow Figwort.* Plantations, wa. pl. 1-3 ft. Per. 4-6, st. winged; ls. downy, pale gr., broadly cord., doubly toothed; cyme axill. with leaf-like bracts; cal. deeply 5-cleft; segm. acute; fl. small, yell., cor. inflated, sta. protrud., no staminode; capsule ovoid, acute.

North Berwick, Dirleton, Aberlady, Gosford, Longniddry, Newbattle, Dalkeith, Melville Castle, Dalhousie, Kirknewton, Philipstoun, Linlithgow.

315 *MIMULUS* L.

1452 **Langsdorfii* Donn. = *luteus* Willd. *Monkey Flower.* Wa. pl. 1-2 ft. Per. 7-8, st. sq.; ls. oppos., broad, ovate, veined, smooth; lr.-ls. stalked, upper ls. clasp.; fl. large, sol., funnel-shaped, yell., often spotted red-brown, axill.; cal.-tube broad; cor. 2-lipped, gaping; sta. 4; fr. many-seeded capsule.

Tynehead, Crichtoun, Arniston, Gorebridge (var. guttatus D.C.), Roslin, Easter Howgate, Cramond, Avonside, Carribber.

318 DIGITALIS L.

1455 **purpurea** L. *Foxglove, Folk's-glove.* Woods, &c. 2-4 ft. Per. 6-8, st. stout; ls. alter., ov.-lanc. stalked, downy, veined; fl. in tall 1-sided rac., droop., glove-shaped, rose-purp., spotted within; cal.-segm. 5 unequal; cor. tubular then inflated with limb shortly 4-lobed, lowest lobe longer, hairy inside; sta. 4; fr. many-seeded, pointed capsule.

Haddington, Gullane, Longniddry, Arthur's Seat, Roslin, Balerno, Dalmeny, Hopetoun, Carribber.

319 VERONICA L. Ls. oppos.; fl. small, blue or white, sol. axill., or in term. or axill. rac. or spike; cor. rotate, tube very short, limb deeply, unequally 4-cleft, lr.-lobe narrowest; *sta.* 2; fr. few seeded-capsule.

(a) *Prostrate annuals; fl. sol. axill., bracts alter.; ls. stalked.*

1456 **hederaefolia** L. *Ivy-leaved Speedwell.* Dry pl. 6-18 in. An. 3-8, ls. cord., 5-7 lobed; fl. sol., axill., pale blue, sep. broad-cord.; capsule swollen, 2-lobed, lobes 2-seeded.

North Berwick, Gullane, Longniddry, Inveresk, Craigmillar, Comiston, Swanston, Craiglockhart, Currie, Balerno, Abercorn.

1457 **polita** Fr. = **didyma** Ten. *Gray Field Speedwell.* Cult. gr., &c. 4-8 in. An. 4-9, ls. cord., irreg. toothed; fl. sol., axill., bright blue, sep. broad-ovate; fr. caps. of 2 swollen 8-12-seeded lobes.

Gullane, Longniddry, Portobello, Slateford, South Queensferry.

1458 **agrestis** L. *Green Field Speedwell.* Cult. gr., &c. 4-8 in. An. 4-9, st. long, prostr.; ls. cord., ovate, reg. toothed, hairy; fl. sol., axill., small, blue with white lr.-lip, sep. obl., blunt; fr. caps of 2 swollen, hairy, keeled, 4-6 seeded lobes.

Dunbar, Haddington, Craigmillar, Currie, Ratho, South Queensferry, Kirkliston, Abercorn.

1459 ***persica** Poir = **Tournefortii** Gmel. = **Buxbaumii** Ten. *Large Field Speedwell.* Cult. gr. 6-12 in. An. 4-10, plant hairy; ls. cord., blunt, coarsely toothed; fl. sol., axill., large (½ in.) bright blue; sep. lanc. acute, ciliate; fr. caps. of 2 spread, hairy, sharply keeled, 5-8-seeded lobes.

Longniddry, Colinton, Carlowrie, Kirkliston, Bo'ness.

(b) *Flowers in terminal racemes.*

1464 **arvensis** L. *Wall Speedwell.* Dry pl. 1-12 in. An. 4-7, plant hairy; st. with 2 lines of hairs; ls. ov.-cord., coarsely toothed, upper-ls. lanc., ent.; fl. very small, pale blue in term. rac., sep. lanc. unequal; fr. caps. obcord., flattened, notched, seeds 12-14.

North Berwick, Haddington, Longniddry, Borthwick, Roslin, Ratho, Dalmeny, Linlithgow, Carribber.

1465 **serpyllifolia** L. *Thyme-leaved Speedwell.* Roadsides. 3-10 in. Per. 7-8, ls. small, broad-ovate, lr.-ls. rounder; fl. pale blue, with dark veins, in many-fld. term. rac., bracts large, leaf-like; capsule obcord., broad, flat., tipped by long style.

North Berwick, Gifford, Longniddry, Swanston, Balerno, Ratho, Dalmeny, Hopetoun, Linlithgow.

(c) *Flowers in axillary racemes.*

1471 **officinalis** L. *Common Speedwell.* Dry pl. 2-10 in. Per. 5-7, st. prostr., rooting, with hairs all round; ls. ov., narr. at base, toothed; fl. small, sess., pale blue, in many-fld. axill. spikes; capsule obcord.

North Berwick, Dirleton, Arthur's Seat, Roslin, Arniston, Linlithgow, Hopetoun.

1472 **Chamoedrys** L. *Germander Speedwell.* Hedges, &c. 6-20 in. Per. 5-6, st. hairy on alter. sides; ls. cord.-ov., nearly sess., deeply toothed, hairy; fl. large, blue, in oppos. axill. long-stalked rac.; sep. lanc.-acute; caps. obcord., flat., deeply notched.

North Berwick, Aberlady, Longniddry, Roslin, Gogar, Balerno, Dalmeny, Carlowrie, Hopetoun.

1473 **montana** L. *Mountain Speedwell.* Woods, &c. 6-20 in. Per. 5-7, st. procumb., spread., hairy all round; ls. ov.-cord., toothed, stalked; fls. few, pale blue in loose

alter. axill. rac.; sep. ov.-lanc., acute; fr. caps. very large, round, flat., cren. notched at top.

Dunglass, Yester, Saltoun, Musselburgh, New Hailes, Arniston, Auchindinny, Roslin, Liberton, Craigiehall, Carribber.

1474 **scutellata** L. *Marsh Speedwell.* Marshes. 6-12 in. Per. 7-8, plant smooth; st. weak; ls. lin.-lanc., acute, minutely toothed, sess.; fl. flesh-col. with dk. lines, in *alter.* axill. rac.; sep. small, lanc.-acute; caps. of 2 large round flat lobes, reflexed.

Aikengall, Aberlady, Duddingston, Braids, Threipmuir, Balerno.

1475 **Anagallis-aquatica** L. *Water Speedwell.* Wat. pl. 1-2 ft. Per. 7-8, st. erect, smooth, succulent, hollow; ls. lanc.-acute, toothed, sess.; fl. pale blue, in *oppos.* axill. rac.; sep. long, lanc.; caps. oval, slightly notched.

Dirleton, Gullane, Aberlady, Duddingston, Gogar, Kirkliston, Abercorn.

1476 **Beccabunga** L. *Brooklime.* Wat. pl. 1-2 ft. Per. 5-9, st. creep.; stem rooting, succulent; ls. stalked, oval, blunt, slightly toothed; fl. bright blue, in *oppos.* axill. rac.: caps. rounded, slightly notched, swollen.

Yester, Gosford, Longniddry, Roslin, Balerno, Ratho, Carlowrie, Humbie Reservoir, Hopetoun.

320 EUPHRASIA L. Plant partially parasitic on roots of grass. *This plant is so variable, that attempts to "match" specimens with descriptions based on Continental specimens have led to much confusion. The influence of climatic conditions is very great and on mountains or by the sea the stem is scarcely branched and the leaves are fleshy, whilst in rich soil the plant is almost bushy.*

officinalis L. (sp. coll.). *Eyebright.* Heaths, &c. 1-2 in. An. 5-9, st. purplish, with white crisped deflexed hairs; ls. oppos., sess., ovate, toothed, smooth or gland.; fl. in leafy spikes, bracts broad at base; cal. 4-cleft, 5-toothed; cor. 2-lipped, upper lip with 2 spread. lobes, lr.-lip 3-equal lobes, white or yellowish, streaked purp., yellow spot in throat; fr. caps. lat. compressed, margin ciliate.

Gullane, Luffness, Fala, Arniston, Crichtoun, Glencorse, Balerno, Carlowrie, Kirkliston.

1480 **brevipila** B. & G. 2-14 in. An. 5-6, coarse plant with few, long, almost erect branches; ls. large, dk.-gr. with short stalked glands and bristles; lr.-ls. obl., blunt, with 1-5 blunt teeth on each side, upper ls. ov. with 4-6 sharp teeth; cal. like ls., with sharp teeth; cor. large, lilac to white, upper lip lilac-bluish, lr.-lip. much longer; caps. long, rounded, retuse, pilose.

Luffness, Gullane.

1481 **nemorosa** Pers. 3-12 in An. 6-8. Plant moderately robust, erect, much branched; ls. of moderate size, nerves prominent on under side; lr.-ls. obl., blunt, 1-3 sharp teeth per side, upper ls. ov.-acute, with 4-6 sharp teeth, gen. smooth; cor. small, white, lr.-lip longer, with narr. lobes; caps. rounded, truncate.

Dunbar, North Berwick, Gullane, Luffness.

1482 **confusa** Pugsley. 1-5 in. An. 6-9. Moderately robust, small, erect or decumb; st. gr., with many long flex. branches; ls. small, lr.-ls. obl., blunt, 1-3 blunt, distant teeth per side, smooth, rarely gland hairy; cal.-teeth very sharp, cor. yell., white (*f. albida*, Pugs) or purplish; fr. caps. obl.-ellip., slightly notched, pilose.

Balerno, Glencorse, Loganlee.

× **brevipila**, and × **gracilis**.

Balerno.

1484 **occidentalis** Wettst. 2-12 in. An. 6-9; small, robust; st. stout; ls. many, large, dk.-gr., lr.-ls. obov., 1, 3 or 5 blunt teeth, falling off early, upper-ls. acum., 3-5 toothed, all clothed in whitish hairs with short stalked glands; cor. small, white, lr.-lip longer; capsule obl., truncate, pilose.

North Berwick.

1487 **gracilis** Fr. = **micrantha** Reichb. 2-12 in. An. Plant purplish; st. slend., erect, simp. or branched; ls. very small, dk.-gr. or purplish, lr.-ls. obl. blunt, 1-2 teeth per side, upper-ls. blunt, 2-4 sharp teeth, smooth or with minute bristles; cal.-teeth with minute bristles, nerves purplish; cor. small, violet, with purp. lines on lips, lr.-lip much longer, segm. narr.; caps. narr.-obl., truncate, smooth.

Balerno, Glencorse.

321 BARTSIA L. Partially parasitic; ls. oppos.; fl. red or yell. in spikes with leafy bracts; cal. 4-cleft; cor. 2-lipped, upper lip ent. (or notched), arched; lr.-lip with 3 reflexed lobes; sta. 4 in pairs; fr. caps. blunt, seeds ang.

1496 **Odontites = Euphrasia Odontites** L = **Odontites rubra.** *Red Bartsia.* Grassy pl., roadsides. 6-18 in. An. 6-9, plant slightly downy; ls. narr., lanc., rounded at base, distant, toothed, dingy reddish-gr.; fl. purp.-red in 1-sided rac., bract longer than fl., upper-cor.-lip longer than lr.-lip; seeds few.

Gifford, Gullane, Aberlady, Longniddry, Roslin, Penicuik, Turnhouse, Kirkliston, Carribber.

322 PEDICULARIS L. Partially parasitic; ls. alter., sometimes nearly oppos., 1-2-pinnfid., deeply cut; fl. sess. in leafy spikes; cal. inflated, irreg. toothed; cor. gaping, tube longer than cal., upper lip arched, flattened, lr.-lip 3-lobed; sta. 4; fr. caps. flattened, seeds ang.

1499 **palustris** L. *Marsh Lousewort, Red Rattle.* Marshes. 6-18 in. An. 5-9, st. sol., erect with whorl of ov.-acute scales at base; fl. sess., axill.; cal. hairy, ov., with 2 ragged lobes; cor. crim., gaping, upper lip with tiny pt. on each side of tip and a small tooth on each side about the middle.

Gullane, Aberlady, Duddingston, Balerno, Dalmeny.

1500 **sylvatica** L. *Heath Lousewort.* Moist, heathy pl. 3-10 in. Per. 4-7, st. procumb., branched at base, spread., with whorl of ov.-lanc., cren., reflexed ls. at base; fl. rose-pink; cal. smooth, 4-5 toothed, upper cor.-lip with teeth at middle.

Fala, Threipmuir, Balerno, Black Craig.

323 RHINANTHUS L. Partial parasite.

1502 **minor** Ehrh. = **Cristagalli** L. *Yellow Rattle, Cock's Comb.* Past. 2-18 in. An. 5-8, ls. oppos., lanc., toothed; bracts gr., ov.-toothed; fl. yell., gaping, with spot on lips, in loose leafy spike; cal. pale, inflated; cor.-tube straight, longer than cal., upper lip flattened, with tooth on each side, lr.-lip shorter, 3-lobed; sta. 4; caps. round, flat, seeds large, gen. winged.

North Berwick, Aberlady, Longniddry, Roslin, Balerno, Mid-Calder, Carlowrie, Abercorn, Linlithgow, Carribber.

324 MELAMPYRUM L. Partial parasite; ls. oppos.; fl. sess. in leafy bracts of spike; cal. bell-shaped, 4-toothed; cor. 2-lipped, with mouth nearly closed by project. under-lip, upper-lip with reflexed sides; fr. ovate caps., seeds 2-4, obl.

1511 **pratense** L. *Yellow Cow-wheat.* Woods, &c. 6-18 in. An. 5-9, ls. lanc., cord., upper ls. toothed at base, oppos. in distant pairs; fl. pale yell., axill., turning to 1 side, spread. horizontally; cor. 4 times as long as cal., lr.-lip longer.

Tynehead, Pressmennan, Roslin, Auchindinny, Balerno, Bellsyde, Linlithgow (var. ericetorum).

1512 **sylvaticum** L. *Small-flowered yellow Cow-wheat.* Hilly woods. 6-24 in. An. 7-8, ls. lin., lanc., ent.; fl. very small, deep yell. axill., turning to 1 side, nearly erect; cor. twice as long as cal., with open, equal lips.

Moneynut Woods.

56. OROBANCHACEAE.

Toothwort Family—Fleshy brownish parasites with ls. reduced to scales; fl. with gaping 2-lipped cor.; cal. 4-5 cleft; sta. 4, in pairs of diff. lengths; ovary 1-celled; fr. capsule, seeds minute.

326 LATHRAEA L.

1525 **Squamaria** L. *Toothwort.* Damp woods. Parasitic on roots of hazel, &c., or saprophytic on dead ls., &c. 4-10 in. Per. 4-5, flesh-coloured plant; st. cov. with short, thick, fleshy ovate-lanc. scales or bracts; fl. droop. in dense 1-sided spike; cal. bell-shaped, 4-cleft; cor. 2-lipped, gaping, upper lip arched, ent., decid.

Haddington, Gifford, Arniston, Temple, Dalhousie, Roslin.

57. LENTIBULARIACEAE.

Butterwort Family—Insectivorous plants; cor. irreg., 2-lipped, spurred; sta. 2, carpels 2, ovary 1-celled; placent. free-central; fr. capsule.

Key to Genera.

Water-plant; ls. very finely divided, with bladders; fl. yell., cor. closed	*Utricularia*	327
Land-plant; ls. ent. fleshy, in rad. rosette, viscid; fl. violet, cor. gaping	*Pinguicula*	328

327 UTRICULARIA L. Submerged, float. plant; ls. multifid, segm. thread-like, bearing small gr. bladders; ls. few, in term. rac., rising above water; cal. 2-lobed; cor. 2-lipped, spurred, mouth of tube closed by palate from lr.-lip; sta 2; fr. glob. capsule.

1526 **vulgaris** L. *Large Bladderwort.* Pools. 6-12 in. Per. 6-7, ls. ciliate, bladders sev. amongst ls.; fl. rather large, bright yell.; spur conical, curved to meet reflexed lr.-lip; upper lip almost as long as 2-lobed palate.

Gullane, Aberlady, Ravelrig.

1528 **minor** L. *Small Bladderwort.* Pools. 2-6 in. Per. 6-8, slender plant; ls. very fine, not ciliate; bladders 1-2 (or 0); fl. small, pale yell.; spur reduced to knob; lr.-lip. flatter, upper lip as long as palate.

Pentlands, Ravelrig.

328 PINGUICULA L.

1532 **vulgaris** L. *Butterwort.* Bogs. 2-6 in. Per. 5-7, ls. in rad. rosette, ent., inrolled, light gr., fleshy, cov. with little crystal. pts.; fl. sol., violet, on long ped.; cal. 2-lipped; cor. gaping, with very unequal lobes, spur tapering; caps. longer than cal.

Gullane, Aberlady, Fala, Penicuik, Swanston, Whelpside, Balerno, Pentlands.

59. LABIATAE.

Mint Family—Herbs with square stems; ls. oppos., decussate, simp.; fls. in axill. clusters, cal. 5-cleft, cor. 2-lipped, sta. 4, in 2 pairs, ovary deeply 4-lobed, style 1; fr. splitting into 4 nutlets.

Key to Genera.

I. *Nutlets free:*		
A. *Stamens 4:*		
1. *Cor. 4-cleft, bell-shaped; cal. 5-toothed:*		
(a) *Sta. perf., diverg.; nuts not bordered*	*Mentha*	330
(b) *St. 2 perf., 2 imperf.; nuts bordered*	*Lycopus*	331
2. *Cor. 2-lipped, upper lip straight, almost flat:*		
(a) *Stamens diverging:*		
(1) *Cal. 5-toothed; fl. in cymes; ls. broad, ovate*	*Origanum*	332
(2) *Cal. 2-lipped; fl. in clusters; ls. small, prostr.*	*Thymus*	333
(b) *Stamens converging; cal. 2-lipped:*		
(1) *Bracts lin.; whorls few* . .	*Clinopodium*	334
(2) *Bracts minute or 0; whorls many*	*Calamintha*	335
B. *Stamens 2:*		
1. *Cal. tubular, 2-lipped; cor. 2-lipped, open*	*Salvia*	337
C. *Stamens 4—2 upper longer:*		
1. *Cal. tubular, 5-toothed; cor. 2-lipped, open*	*Nepeta*	338
D. *Stamens 4—2 upper shorter; cor.-upper-lip arched:*		
1. *Cal ovate, closing over fruit:*		
(a) *Cal.-lips ent., upper with scale; cor. lips almost closed*	*Scutellaria*	339
(b) *Cal.-upper-lip, 3-toothed, lr.-lip 2-fid; cor. open*	*Prunella*	340
2. *Cal. tubular, 5-10 toothed, spread. in fr.:*		
(a) *Cal. 10-toothed; anthers included* .	*Marrubium*	342
(b) *Cal. 5-toothed:*		
(1) *Cal. 10-ribbed; cor.-lr.-lip reflexed at edge; anthers smooth* . .	*Stachys*	343

(2) *Cal.-teeth spinous, lr.-lip unequally lobed; anthers fringed* .	*Galeopsis*	344
(3) *Cal.-teeth spinous; ls. lobed, radls. palm.*	*Leonurus*	345
(4) *Cal. 10-ribbed; cor.-lr.-lip ent. or 1-2 teeth; anthers gen. hairy* .	*Lamium*	346
(5) *Cal.-teeth spiny, broad, spread.; cor.-lip 3-fid; anthers smooth* .	*Ballota*	347
II. *Nutlets united, wrinkled; cor.-upper-lip v. short:*		
1. *Cor.-upper-lip deeply cleft* . . .	*Teucrium*	348
2. *Cor.-upper-lip entire; bracts leafy* .	*Ajuga*	349

330 MENTHA L. Plant strongly scented, usually hairy; st. square; ls. oppos., decussate, simp.; fl. small, in dense, axill. or term. clusters like whorls (verticillaster); cal. 5-toothed; cor. almost reg., bell-shaped, limb 4-lobed; sta. 4, nearly equal, erect, smooth; style 2-fid; fr. splitting into 4 nutlets.

(*a*) *Fl. in term. spike of clusters.*

1537 **rotundifolia** Huds. *Round-leaved Mint.* Wa. pl. 2-3 ft. Per. 8-9, ls. hairy, broad-ovate, blunt, toothed, wrinkled, whitish beneath, sess.; fl. small, pale pink, in lin. leafy interrupted spike, bracts lanc., cor. hairy.

Tynehead, East Linton, Musselburgh, Auchindinny, Currie-hill.

1539 **longifolia** Huds. = **sylvestris** L. *Long-leaved or Horse Mint.* Wa. pl. 2-4 ft. Per. 8-9, downy; ls. obl.-lanc., unequally toothed, sess., silky beneath; fl. small, lilac, in slend. continuous spike, bracts awl-shaped, cor. hairy; fr.-cal. contracted at mouth.

Tynehead, Craigmillar, Nether Liberton, Colinton, Gogar, Kirkliston, Linlithgow, Carribber.

(*b*) **nemorosa** Willd. Wa. pl. Ls. obl.-ov., rounded at base, densely hairy beneath

Slateford.

(*c*) **mollissima** Borck. Wa. pl. Ls. almost cord., finely toothed, downy above, white-felted beneath.

Liberton.

1540 **viridis* L. = *spicata* Huds. *Spear-Mint.* Wa. pl. 1-3 ft. Per. 8-9, smooth; ls. lanc.-acum., toothed, smooth, gland. beneath, sess.; fl. lilac, in slend. interrupted spike; bract awl-shaped, cor. smooth—smell pungent.

Tynehead, North Berwick, Musselburgh, Craigmillar, Comiston, Balerno, Pentlands, Mid-Calder, Carlowrie.

1541 × **piperita** L. *Pepper-mint.* Wet pl. 1-2 ft. Per. 8-9, smooth; ls. ov.-lanc., toothed, oil-glands beneath, stalked, upper ls. smaller; fl. lilac, in loose, short, blunt spikes, interrupted below, often tinged purp., bracts lanc.; cal. often reddish, with awl-shaped teeth (aquatica × spicata).

Arniston, Eskside.

1543 **aquatica** L. = **hirsuta** Huds. *Water Capitate Mint or Hairy Mint.* Wet. pl. 1-4 ft. Per. 7-10, plant hairy, coarse; ls. ov., slightly cord. toothed, shortly stalked, uppermost small bract-like; fl. lilac, larger, in term. glob. or ovoid hd., with at times 1-2-axill. ones.

Yester, Gullane, Aberlady, Arniston, Roslin, Ratho, Dalmeny, Carlowrie, Carribber.

(b) *Fl. in axillary clusters.*

sativa L. = **rivalis** Wats. = × **arvensis** = × **verticillata** Huds. *Whorled Mint.* Marshes. 1-3 ft. Per. 8-10, ls. ovate, toothed, hairy, stalked, upper ls. smaller; fl. lilac, rather large, in distant, axill. clusters, bracts leafy, cal.-teeth lanc. acute—*aquatica* × *arvensis.*

Gullane, Musselburgh.

1547 **arvensis** L. *Field Mint, Corn Mint.* Fields. 1-2 ft. Per. 8-10, plant low, spread., downy; ls. obl.-lanc., toothed, stalked, all alike; fl. lilac, in dense distant, axill. clusters; cal. with short, triang., hairy teeth.

Aberlady, Dryden, Carlowrie, Kirkliston.

331 LYCOPUS L.

1549 **europaeus** L. *Gipsywort.* Wet pl. 1-3 ft. Per. 6-9, st. square; ls. ov.-obl., deeply-cut, wrinkled, oppos. stalked; fl. white dotted with red, small, in dense, axill.

clusters; cal.-teeth 5, stiff, pointed; cor. 4-fid; sta. 2, long, parallel, later diverg., 2 upper, imperf.; fr. of 4 nutlets with thickened, corky border.

Dunbar, Roslin, Leith, Pentlands, South Queensferry.

332 ORIGANUM L.

1550 **vulgare** L. *Marjoram.* Roadsides, &c. 1-2 ft. Per. 7-9, plant aromatic; st. square; ls. ovate, blunt, ent., downy, stalked; fl. rosy-purp., in compact hds.—corymbose cyme; bracts ov., tinged purp.; cal. hairy inside, teeth short, equal; cor. 2-lipped, with 4 broad, nearly equal lobes; sta. 4 diverg., 2 longer protrud.

East Linton, Arniston, Roslin, Cramond, Dalmeny, Almondside, Kirkliston, Carribber.

333 THYMUS L.

1551 **Serpyllum** L. *Wild Thyme.* Hilly pl. 2-8 in. Per. 6-8, plant aromatic; st. procumb., wiry; ls. very small, ovate, ent., fringed at base, upper ls. smaller; fl. red-purp. in crowded term. hd.; cal. 2-lipped, upper lip 3-toothed, lr. 2-cleft; cor.-upper-lip obl., erect; sta. diverg.; fr. 4 nutlets, glob., mealy.

North Berwick, Aberlady, Longniddry, Arthur's Seat, Swanston, Pentlands, Dalmahoy, Craigton, Kirkliston.

334 CLINOPODIUM L. = **CALAMINTHA** = **SATUREIA.**

1553 **vulgare** L. = **Cal. vulgaris** Dr. = **Cal. Clinopodium** Sp. = **Sat. vulgaris** Fr. *Wild Basil.* Hedgerows, &c. 1-2 ft. Per. 7-9, st. nearly erect; ls. ovate, rounded at base, slightly toothed, soft, hairy, stalked; fl. purp.-crim. in dense, many-fld. axill. clusters with involucre of lin., bristle-like, hairy bracts; cal.-teeth awl-shaped, hairy; cor. 2-3 times as long as cal.; sta. 4 converg.; nutlets smooth.

Pressmennan, Roslin, Slateford, [Blackford Quarry].

335 CALAMINTHA Lam. = **SATUREIA.**

1554 **Acinos** Clairv. = **arvensis** Lam. *Basil Thyme.* Fields, &c. 4-10 in. An. 6-9, plant prostr., small, slend.; ls. narr., ov., acute, toothed, edges rolled back, stalked; fl. pale purp. spotted, in simp. axill. 5-6 fld. clusters; cal.-tube swollen below, 2-lipped, upper teeth triang., lr.-teeth awl-shaped, converg. in fr.; cor. very small, throat closed by hairs; sta. 4, converg.; nutlets smooth.

Dirleton, Aberlady, Salisbury Crags, &c., Leith.

337 SALVIA L. Ls. ovate, coarsely toothed, very wrinkled; fl. in clusters forming term. spikes, cal. 2-lipped, upper-lip 3-toothed, lr.-lip 2-cleft; cor. upper lip erect, arched, lr.-lip 3-lobed, spread.; sta. 2, filaments with 2 diverg. branches, long connectives.

1560 **horminoides** Pourr. = **verbenaca** auct. angl. *Clary.* Grav. pl. 12-30 in. Per. 5-8, ls. broad-ovate, deeply toothed or pinnfid., cord. at base, wrinkled, stalked; upper-ls. sess., broad, cord., clasp.; fl. bluish violet, small, in term. hairy spikes of 6-fld. clusters; bracts gr., cord., ent.

Linlithgow.

b. **incisa** Benth. Dry pl. 9-18 in. Ls. more deeply cut.

Salisbury Crags.

1563 **verticillata* L. *Sage.* Wa. pl. 12-24 in. Per. 6-8, plant almost smooth; ls. triang., cord., lr.-ls. eared; fl. bluish, in many-fld. clusters.

Prestonpans, Seton Mains, Inveresk, Borthwick, Gorebridge, Straiton, Slateford Qu., Kirkliston.

338 NEPETA L. Fl. with 2-lipped, open cor. with long tube, enlarged throat, upper-lip notched or 2-lobed, lr.-lip 3-lobed, spread.; cal.-tube 5-toothed, 15-ribbed; sta. 4 in pairs under upper lip—2 upper longer.

1564 **Cataria** L. *Catmint.* Hedges, &c. 2-3 ft. Per. 7-9, st. erect, ls. ov.-cord., toothed, rather hoary with minute down, stalked; fl. small, lavender, in spikes of dense, many-fld. clusters.

Leith, Salisbury Crags (var. grandiflora Bieb), Carribber.

1565 **hederacea** Trev. = **Glechoma** Benth. *Ground Ivy, Gill, Alehoof.* Hedgerows, &c. 6-18 in. Per. 3-5, st. procumb.; ls. kidney-shaped, ent., deeply cren., lr.-ls. long-

stalked; fl. blue-purp. in 3-4-fld. axill. clusters, bracts leaf-like, cor.-tube twice as long as cal.; anthers form a cross.

Yester, Aberlady, Gosford, Inveresk, Arniston, Balerno, Kirkliston, Linlithgow.

339 SCUTELLARIA L.

1566 **galericulata** L. *Skullcap.* Riversides. 6-18 in. Per. 7-9, st. weak; ls. all obl.-lanc., cord., cren., downy; fl. dingy blue, in pairs, axill. turned to one side; cal. 2-lipped, upper-lip with concave scale on back, closing over fr. like a lid; cor.-tube slend., curved below, enlarged at throat; sta. parallel under upper-lip, filam. simple.

Dunbar, Pressmennan, Musselburgh.

340 PRUNELLA L.

1568 **vulgaris** L. *Selfheal.* Grassy pl. 4-12 in. Per. 7-9, st. erect, ls. ov.-obl., ent., stalked; fl. blue-purp. in 6-fld. clusters with purp.-edged, kidney-shaped, acum. bracts beneath each, forming spike with pair of ovate ls. close below it; cal. red-purp. with slightly fringed teeth, upper-lip 3-toothed, lr.-lip 2-fid; cor. open; sta. 4 parallel, filam. 2-fid.

Haddington, Gullane, Aberlady, Musselburgh, Penicuik, Ratho, Kirkliston, Abercorn, Linlithgow.

342 MARRUBIUM L.

1571 **vulgare** L. *Horehound.* Wa. pl. 1-2 ft. Bi. 7-10, st. erect, woolly; ls. ovate, cren., woolly, wrinkled; fl. small, white, in dense axill. clusters; cal. tub., 10-toothed, teeth awl-shaped, spread., hooked, woolly below, smooth above; cor.-tube short, upper-lip very narr., 2-fid.; sta. 4 included in tube; nutlets rounded at top,

Innerwick Castle, North Berwick, Gullane, Aberlady, Longniddry, Inveresk, Leith, Slateford.

343 STACHYS L. Coarse hairy plant; ls. simp., oppos. toothed; fl. 2-lipped in term. spikes of clusters; cal.-teeth equal, very pointed; cor.-upper-lip arched, ent.

lr.-lip longer, 3-lobed, spread., side-lobes reflexed; sta. 4 in pairs under upper-lip—2 upper, shorter; nutlets smooth, rounded at top.

1572 **officinalis** Trev. = **Betonica** Benth. = **Betonica officinalis.** *Wood Betony.* Heathy pl. 4-24 in. Per. 6-9, lr.-ls. cord., obl., blunt, cren., long-stalked, upper ls. few, distant, lin., sess.; fl. red-purp. in close term. spike of dense clusters, bracts lin., ent.; cal.-teeth almost prickly.

Saltoun, Auchindinny, Colinton.

1574 **palustris** L. *Marsh Woundwort, Clown's All-heal.* Damp. pl. 1-3 ft. Per. 7-8, st. hollow; ls. lin., lanc., cord., toothed; lr.-ls. very shortly stalked, upper-ls. sess.; fl. pale bluish-purp. in rather crowded spike of clusters; cal.-teeth acute but not prickly, bracts minute; nutlets shining.

North Berwick, Habbie's Howe, Lasswade, Auchindinny, Blackhall, Corstorphine, Carlowrie, Abercorn.

1575 **sylvatica** L. *Hedge Woundwort.* Woods, &c. 1-3 ft. Per. 7-8, st. stout, solid, coarsely hairy; ls. all stalked, ovate-cord. acum. toothed, upper-ls. lin.; fl. red-purp., lr.-lip of cor. with white marks, in long term. spikes of distant clusters; nuts irreg., warted; smell disagreeable.

Gullane, Aberlady, Longniddry, Inveresk, Blackford, Ratho, Dalmeny, Kirkliston, Linlithgow.

1577 **arvensis** L. *Field or Corn Woundwort.* Cult. gr., &c. 4-18 in. An. 4-11, st. weak, decumb.; ls. cord.-ovate, blunt, cren.; lr.-ls. stalked, upper-ls. sess.; fl. very small, pale purp. in loose leafy spikes of 4-6-fld. clusters; cor. as long as cal.; nutlets dotted, warty.

Dunbar, Leith, Roslin, Pentlands.

1578 **annua* L. *Annual Woundwort.* Wa. pl. 4-12 in. An. 7-9, st. erect; lr.-ls. ovate-obl., blunt, toothed, stalked, upper-ls. lanc.-acute; fl. creamy-white, cal.-teeth lanc., very acute, cor.-tube longer than cal., bracts minute; fr. nut minutely rough.

Buckstone, near Edinburgh, Leith, Slateford.

344 GALEOPSIS L. Ls. ov.-lanc., toothed; fl. in dense axill. and term. clusters; cal. almost reg., 5 spinous teeth; cor. with inflated throat, upper-lip arched; sta. 4, upper pair shorter, anthers fringed with hairs.

1579 **intermedia** Vill. = **Ladanum** L. *Red Hempnettle, Ironwort.* Cult. gr. 10-12 in. An. 7-10, plant downy; ls. lanc., coarsely toothed; fl. in dense 6-10-fld. clusters, cal. cov. with gland. and adpressed hairs; cor. red, marked with white, upper-lip notched, tube long.

Dunbar, Oxenford, Newbattle, Leith.

1582 **speciosa** Mill. = **versicolor** Curt. *Large-flowered Hempnettle.* Cult. gr. 1-2 ft. An. 7-8 st., swollen at joints; ls. obl.-ov., acum., toothed, long-stalked; fl. large yell. with purp. spot on lr.-lip, upper-lip broad, arched; nutlets dk.-brown.

North Berwick, Blackford, Comiston, &c.

1583 **Tetrahit** L. *Common Hempnettle.* Wa. pl. 1-4 ft. An. 7-8, st. swollen at joints; ls. obl.-ov., acum., toothed; fl. in dense clusters, large, pale purp., with white marks; cor.-tube slend.; cal. strongly ribbed, teeth long, sharp; nutlets ang., green, veined.

Liberton, Turnhouse, Ratho, Carlowrie, Kirkliston.

345 *LEONURUS* L.

1584 **Cardiaca* L. *Motherwort.* Wa. pl. 2-3 ft. Per. 7-9, *lr.-ls. palmate* 5-7 *cleft*, coarsely toothed, stalked, upper-ls. 3-cleft or ent., wedge-shaped below; fl. small, pink, in crowded 6-15-fld., axill. clusters, form. long interrupted leafy spike; cal. bell-shaped, teeth 5 sharp, prickly, spread.; cor.-upper-lip erect, hairy; sta. 4 in pairs, upper shorter; nutlets flat, ang. at top.

North Berwick, Musse burgh, Leith, Slateford, Colinton, Manuel.

346 LAMIUM L. St. decumb. at base; lr.-ls. stalked, ovate or round, toothed; fl. in close axill. clusters or term. hd.; cal. tub., 5-toothed, 10-ribbed; cor.-tube slend., enlarged at throat, upper-lip arched, lr.-lip spread. with broad mid-

lobe, side-lobes reduced to teeth; sta. 4, upper pair shorter, anthers hairy except in *L. Galeobdolon;* fr. 4 nutlets.

1585 **amplexicaule** L. *Henbit Dead-nettle.* Dry pl. 4-12 in. An. 5-8, ls. round, cord. wrinkled, blunt. cren., upper-ls. sess., kidney-shaped, clasp.; cal. small, downy, teeth equal. tube, closing over fr.; fl. reddish, in distant clusters; cor. long, slend., tube straight, without hairs inside.

North Berwick, Drem, Longniddry, Musselburgh, Comiston, Ratho, Carlowrie, Kirkliston, Linlithgow.

1586 **mollucellifolium** Fr. = **intermedium**: *Intermediate Dead-nettle.* Cult. gr. 4-12 in. An. 5-9, differs from *L. amplexicaule* in having long, spread. stiff, purp. cal.-teeth.

Longniddry, Duddingston.

1587 **hybridum.** Vill. = **incisum** Willd. *Cut-leaved Dead-nettle.* Wa. pl. 4-18 in. An. 4-10, ls. all stalked, very deeply cut, cren., lr.-ls. cord., upper ls. wedge-shaped at base, crowded; fl. reddish, in crowded whorls, cal.-teeth spread., cor.-tube cylind., straight, shorter than cal.; nuts smooth.

Port Seton, Longniddry, Leith, Slateford.

1588 **purpureum** L. *Red Dead-nettle.* Wa. pl. 4-18 in. An. 4-10, ls. all stalked, cord., cren., often tinged red, lr.-ls. round, upper-ls. ovate, ptd.; fl. red, in crowded clusters, cal.-teeth spread. cor.-tube curved, longer than cal., with ring of hairs within, upper-lip hairy, lr.-lip spotted.

Dunbar, North Berwick, Longniddry, Inveresk, Roslin, Gogar, Kirkliston, Linlithgow, Carribber.

1589 **maculatum* L. *Spotted Dead-nettle.* Wa. pl. 6-18 in. Per. 5-9, ls. all stalked, ovate, acum., deeply toothed, with *white stripe* down middle; fl. large, purp.-red. in close axill. clusters, cal.-teeth broad, recurved, as long as tube; cor.-tube curved, longer than cal., abruptly enlarged at throat, ring of hairs within, transverse.

Gilmerton, Comiston, Cramond, Dalmeny, Kirkliston.

var. *laevigatum* L. Ls. green, triang., cord., without the white marking.

Gilmerton, Cramond, Ratho, Kirkliston, Niddry.

1590 **album**. L. *White Dead-nettle.* Wa. pl. 1-2 ft. Per. 5-9, ls. all stalked, cord., ovate, acum. deeply toothed; fl. large, white, in dense, axill. clusters; cal.-teeth long, narr., ptd., spread.; cor.-tube curved, longer than cal., gradually enlarged at throat, ring of hairs within, oblique; upper-lip long, arched; anthers black.

North Berwick, Haddington, Longniddry, Inveresk, Roslin, Ratho, Dalmeny, Hopetoun, Carribber.

1591 **Galeobdolon** Cr. = **Galeobdolon luteum** Huds. *Yellow Archangel, Weasel-Snout, Yellow Dead-nettle.* Woods. 6-18 in. Per. 5-6, ls. ovate, acum., coarsely toothed, stalked, upper ls. lanc., narr. below; fl. bright yell. with red spot on lip, in dense axill. distant clusters; cal.-teeth short; cor.-upper-lip long, arched; lr.-lip 3-lobed, anthers smooth.

Dunglass, Gosford, Longniddry, Leith, Carlowrie.

347 BALLOTA L.

1592 **nigra** L. *Black Horehound.* Wa. pl. 1-3 ft. Per. 6-10, coarse hairy plant, with disagreeable smell; ls. stalked, ovate, wrinkled, coarsely toothed, hoary; fl. purp., in dense axill., one-sided clusters, with stiff. lin. leafy bracts; cal. funnel-shaped, 10-ribbed, purplish teeth 5 broad, spread, prickly; cor.-upper-lip arched, lr.-lip 3-lobed, spread.; anthers protruding.

North Berwick, Gullane, Aberlady, Longniddry, Preston, Levenhall, New Hailes, Leith, Arthur's Seat, Blackford Hill.

348 TEUCRIUM L.

1597 **Scorodonia** L. *Wood Sage, Germander.* Dry stony pl. 6-24 in. Per. 7-9, ls. stalked, ovate, cord., wrinkled, coarsely, unequally toothed, gland., mealy beneath; fl. yellowish, in axill. pairs, form. 1-sided rac.; cal. pouched at base, upper-lip broad-ovate, lr.-lip 4-toothed; cor. appears 1-lipped, as upper-lip is reduced to 2 teeth at base of lr. 3-lobed lip; sta. 4 protruding.

Dunbar, Gosford, Longniddry, Roslin, Blackford Hill, Ratho, Dalmeny, Philipstoun, Linlithgow.

349 AJUGA L.

1598 **reptans** L. *Bugle.* Woods. 4-12 in. Per. 5-7, creep. smooth plant; lr.-ls. obov. stalked, upper ls. short, ov. sess. often tinged blue; fl. blue in close clusters in nearly all the lf.-axils, form. cylind. leafy spike; cor.-tube long, upper lip very short, notched, lr.-lip 3-cleft, nutlets united, wrinkled.

Gifford, Saltoun, Gosford, Arniston, Roslin, Balerno, Dalmeny, Abercorn, Manuel.

60. PLANTAGINACEAE.

Plantain Family—Herbs with simple, radical ls.; fl. small, greenish; sep. 4, cor. 4-cleft, sta. 4, style 1, ovary 1-4 celled; fr. a capsule.

Key to Genera.

Land plants; fl. perf. in spikes	*Plantago*	350
Water plants; fl. monoecious, sol.	*Littorella*	351

350 PLANTAGO L. Ls. all rad., ribbed or fleshy; fl. in close spike, cal. 4-cleft, cor. tubular, chaffy; tube ov., limb 4-cleft, spread., reflexed; sta. very long, protrud.; fr. 2-4 celled capsule—very variable.

1605 **Coronopus** L. *Buck's-horn Plantain, Star of the Earth.* Grav. pl. nr. sea. 1-8 in. An. 6-7, ls. lin. *pinn-fid.*, hairy; fl.-spike cylind., slend., bracts awl-shaped, midrib of lat. sep. with fringed membr. wing; sta. pale yell.; capsule 3-4-seeded.

North Berwick, Gullane, Aberlady, Longniddry, Musselburgh, Cramond Island.

1606 **maritima** L. *Sea Plantain.* Shores. 1-12 in. Per. 6-9, ls. lin., grooved, fleshy, hairs at base; spike cylind., bracts ov., mucron; cor.-tube downy, sep. not winged; capsule obl.-conical, 2-seeded.

North Berwick, Gullane, Longniddry, Dalmeny, Abercorn, Blackness.

1607 **lanceolata** L. *Ribwort Plantain, Ribgrass.* Grassy pl. 2-12 in. Per. 6-9, ls. lanc., narr. at both ends, irreg. toothed, 3-5-ribbed, tufts of woolly hairs at base; fl.-spike short, ovate, on grooved ped.; bracts ov.-acute, tipped black, sep. membr. with prominent gr. rib, black-tipped; cor.-tube smooth; sta. long, filam. white, slend., anther yell.; capsule 2-seeded.

Dunbar, Haddington, Longniddry, Burdiehouse, Blackford, Balerno, Dalmeny, Abercorn, Linlithgow.

1609 **media** L. *Hoary Plantain.* Past. 6-12 in. Per. 6-10, ls. ov.-lanc., sess. or shortly stalked, 5-7-ribbed, downy; fl.-spike obl., dense, on downy ped., bracts ov.-acum., lilac, sep. not winged; cor.-tube smooth; sta. long, filam. purp., anthers yell.; capsule 2-seeded.

North Berwick, Prestonhall, Inveresk, Dalkeith, Ratho.

1610 **major** L. *Great Plantain.* Wa. pl. 2-9 in. Per. 5-9, ls. large, broad-oval, strongly ribbed, on grooved stalks; fl.-spike long, bracts ov. keeled; sep. membr., prominently gr.-ribbed; anthers purp.; capsule several seeded.

Dunbar, Gullane, King's Park, Abercorn.

351 LITTORELLA Berg.

1611 **uniflora** Asch. = **lacustris** L. *Shoreweed.* Shallow margins of lochs, &c. 1-3 in. Per. 6-8, creep. under water; ls. all rad. lin. flat above, curved below, fleshy; fl. monoecious; male fl. sol. stalked, axill., sep. 4, cor.-tube 4-lobed, sta. very long, with large ovate anthers; fem. fl. sess. white, sep. 3-4, cor. urn-shaped, 3-4-lobed, style 1, long, stiff; fr. small nut.

Gullane, Gladhouse, Leadburn, Currie.

(3) APETALAE.

(*a*) *Flowers not in catkins.*

61. ILLECEBRACEAE.

Knawel Family—Small herbs with simple, sess. ls.; fl. small, sep. 4-5, pet. 0, sta. 1-10, ovary 1-celled, fruit a small nut.

355 SCLERANTHUS L

1617 **annuus** L. *Annual Knawel.* Sandy fields. 2-8 in. An. 6-9, st. wiry, much branched; ls. oppos. awl-shaped, united at base; fl. small, gr., in axill. and term. clusters; cal. tub., enlarged after flowering, teeth 5, stiff, erect, narr. ptd., with membr. edge, spread.; pet 0, sta. 5 alter. with 5 filaments, styles 2; fr. a small nut.

Lasswade, Corstorphine, Colinton, Kirkliston.

63. CHENOPODIACEAE.

Goosefoot Family—Herbs with simple ls., or leafless jointed stems; fl. small, green, sep. 3-5, pet. 0, sta. 1-5, ovary 1-celled; fr. dry, 1-seeded, enclosed in perianth often enlarged after flowering.

Key to Genera.

I. *Stem leafless:*		
St. succulent, jointed	*Salicornia*	360
II. *Stem leafy:*		
A. *Leaves flat:*		
1. *Flowers perfect:*		
(*a*) *Fruiting perianth unaltered* .	*Chenopodium*	357
(*b*) *Fruiting perianth enlarged, fleshy, 3 bracts at base of fl.*	*Beta*	358
2. *Flowers monoecious: fem. fl.-2 sep. enclosing fr.*	*Atriplex*	359
B. *Leaves small, lin. fleshy:*		
1. *Ls. spinous, awl-shaped; fr.-cal. enlarged, winged*	*Salsola*	362
2. *Ls. not spinous; fr.-cal. not winged* .	*Suaeda*	361

357 CHENOPODIUM L. St. ang.; ls. alter., flat, often triang., ent. or lobed; fl. very small, perf., in little sess. clusters forming axill. spikes or term. panicles; perianth deeply 5-cleft, usually closing, unaltered, over fr.; sta. 2-5, stigmas 2-3; fr. 1 seed with dry membr. covering enclosed in persistent perianth—very variable.

1621 **polyspermum** L. *Many-seeded Goosefoot.* Wa. pl. 6-24 in. An. 7-9, ls. thin, gr., smooth, tinged red, ov.-acute,

ent.; fl. in axill. leafless rac.; cal. thin, gr., not covering fr., seeds glossy, dotted.

Leith, Slateford.

1622 **Vulvaria** L. *Stinking Goosefoot.* Wa. pl. 6-18 in. An. 7-9, plant cov. with "greasy meal, smelling of stale fish"; ls. stalked, small, ovate, ang., ent.; fls. in dense leafless spikes; seeds short, rough.

Prestonpans, Musselburgh, Leith, Portobello, Slateford.

1623 **album** L. *White Goosefoot, Fat-hen.* Wa. pl. 6-24 in. An. 8-9, ls. whitish, very mealy on both sides, ovate.-acute, ang., ent. at base, bluntly toothed above, upper ls. lanc., ent.; fls. in dense, almost leafless spikes; cal. quite enclosing fr., seeds small, keeled.

Gullane, Aberlady, Longniddry, Murrayfield, Dalmeny, Abercorn.

1630 ***hybridum** L. *Maple-leaved Goosefoot.* Wa. pl. 6-36 in. An. 8-9, plant large, stout; ls. cord., ang., with large distant teeth; fls. in small clusters, form. loose, axill., flat cymes; cal. not covering fr., seeds pitted, not keeled.

Dunbar, Leith, Kinneil.

1631 ***urbicum** L. *Upright Goosefoot.* Wa. pl. 1-3 ft. An. 8-9, ls. triang. toothed, base narr. to stalk; fls. in small distant clusters, on long erect spikes; cal. not covering fruit.

Musselburgh, Leith.

1632 **rubrum** L. *Red Goosefoot.* Wa. pl. 2-36 in. An. 8-10, plant often reddish; st. erect; ls. all triang., irreg.-toothed, wavy, smooth; fls. crowded in leafy panicles; peri.-segm. 2-3 (in term. fl. 5); seeds very minute.

Gullane (var. pseudo-botrioides Wats.), New Hailes, Leith.

1635 ***Bonus-Henricus** L. *Good King Henry, Allgood, Mercury Goosefoot.* Roadsides. 9-24 in. Per. 6-10, ls. large, dk.-gr., triang., acum., hastate (lobes spread horizontally) ent., stalked; upper ls. smaller, almost sess.; fls. many, in term. comp. spikes, leafy only at base; stig. long; seeds glossy.

Tynninghame, Haddington, Monktonhall, Gorebridge, Craigmillar, Swanston, Currie, Almondbank, South Queensferry, Kirkliston, Bo'ness.

358 BETA L.

1637 **maritima** L. *Sea Beet.* Shore. 1-3 ft. Per. 6-10, st. ang., striped, procumb. at base in a circle, then erect; ls. broad-ov. stalked, fleshy, glossy; fl. perf. in 2-3 fld. clusters in slend. leafy spikes; perianth deeply 5-cleft, becoming fleshy; sta. 5, stig. 2 lanc.; fr. 1-seeded, adhering to fleshy calyx.

North Berwick, Bass Rock, Gosford, Cramond, South Queensferry.

359 ATRIPLEX L. Plant cov. with meal; ls. flat, alter. lr. ones rarely oppos.; fl. small, many, of 2 kinds, male-fl.-peri. reg. 5-cleft, fem.-fl. of 2 ov. sep. toothed on edge, warty on back, enlarging to enclose fr. but not adhering to it; sta. 3-5, stig. 2; fr. 1-seeded—very variable.

1639 **littoralis** L. *Grass-leaved Orach.* Salt-marshes. 1-2 ft. An. 7-9, st. striped red; ls. lin.-lanc., gen. ent.: fls. in sess. clusters in slend. spikes.

Tynninghame, South Queensferry.

1640 **patula** L. *Spreading Orach.* Wa. pl. 1-4 ft. An. 7-9, st. grooved, tinged red; ls. all stalked, lr.-ls. sometimes oppos. triang., wedge-shaped, with 2 lobes at base spread. upwards, toothed, upper-ls. lanc., ent.; fls. mixed (male and fem.) in clusters on simp. interrupted spikes, leafy below.

Gullane, Longniddry, Port Seton, Dreghorn, Murrayfield, Dalmeny, South Queensferry.

1641 **hastata** L. *Halberd-leaved Orach.* Wa. pl. 6-48 in. An. 7-9, dk.-gr., mealy; ls. triang., leafy hastate (lobes. spread horizontally); spike interrupted, leafy at base; peri-segm. triang., often irreg.-toothed, very variable, often 2 sizes on one plant.

North Berwick, Aberlady, Longniddry.

(*b*) **deltoidea** Bab. Upper ls. hastate.

Longniddry.

1643 **maritima** E. Hallier = **laciniata** L. = **arenaria** Woods. *Frosted Sea Orach.* Seashore. 6-12 in. An. 7-10, st. buff-col.; ls. triang., irreg.-cut, silvery-white, mealy

beneath; male-fls. term., fem.-fls. axill.; fr.-peri.-segm. mealy white, roundish, 3-lobed, united in swollen, hardened base.

Longniddry, &c.

360 SALICORNIA L. Leafless fleshy plant, st. jointed, branches oppos.; fl. minute, inserted in pits on upper st., each internode with 3 fls. in triang. on each side, forming term. cylind. spike; perianth fleshy, persist., nearly closed; sta. 1-2 protrud., style short; fr. small nut enclosed in unchanged perianth, seed ovoid.

1648 **dolichostachya** Moss. *Glasswort.* Salt marshes. 6-18 in. An. 8-9, term. spikes usually very long with 30-40 fl.-segm. often curved, branched; central fl. separating or almost separating lat. ones of group; sta. 1.

Tyne Estuary, Luffness, Bo'ness.

1649 **stricta** Dum. = **europaea** L. = **herbacea.** *Glasswort.* Salt marshes. 6-18 in. An. 6-9, st. erect, branches ascend.; term. spikes much shorter, slightly tapering, blunt; fl.-segm. much fewer, straight, unbranched; fls. nearly equal in size, central fl. not separating lat. ones of group, fls. nearly equal in size; sta. usually 1.

Tynninghame, North Berwick, Luffness, Prestonpans.

b. **procumbens** Sm. = **patula** Moss. & Salisb., st. shorter, 4-8 in., often more or less decumb., branches fewer, shorter, more divaricate.

Tynninghame, North Berwick, Luffness, Prestonpans.

1650 **ramosissima** Woods. *Glasswort.* Salt marshes. 6-18 in. An. 8-9, much branched; term. spikes markedly tapering, acute; lat. fls. much smaller than central one in each group; sta. 2.

North Berwick.

361 SUAEDA Forsk. = **DONDIA** Adans.

1656 **maritima** Dum. *Sea-blite, Damort.* Salt marshes. 3-18 in. An. 7-9, plant low, straggling, glauc. gr., or reddish; ls. small, lin., acute, fleshy; fl. perf., small, gr.

sess. 2-3 in axil, with bracts; peri. deeply 5-cleft, often fleshy; sta. 5, styles 2; seeds netted, glossy.

Tynninghame, Dunbar, Gullane, Aberlady, Morrison's Haven, Dalmeny, Abercorn, Linlithgow.

362 SALSOLA L.

1657 **Kali** L. *Saltwort.* Sandy shores. 6-18 in. An. 7-8, plant stiff, glauc., hairy; st. prostr., ang., stiff, striped; ls. awl-shaped, fleshy, end. in sharp spine, rough, sess.; fl. sol., axill, perf. reg.; peri. 5-cleft, segm. winged, sta. 5, styles 2; fr. 1-seeded, enclosed in enlarged, 5-winged perianth.

Tynninghame, North Berwick, Gullane, Longniddry, Dalmeny, South Queensferry, Abercorn.

64. POLYGONACEAE.

Dock Family—Herbs with simple, alter. ls., sheathing stipules united in a tube (ocrea); fl. small, greenish, peri. 4-6 cleft, sta. 5-8, styles 2-3, ovary, 1-celled; fr. small triang. or flattened nut.

Key to Genera.

Perianth 5-cleft; fr. triang. nut	*Polygonum*	363
Perianth 4-cleft; fr. flat nut with membr. wing .	*Oxyria*	365
Perianth 6-cleft; fr. triang. nut enclosed by enlarged perianth	*Rumex*	366

363 POLYGONUM L. Very variable plants; st. often swollen and bent at joints; ls. alter., simp.; fl. perf., pale gr. or reddish, in spike, rac. or pan.; peri. deeply 5-cleft, sta. 5-8, styles 2-3; fr. compressed, or 3-sided.

1659 **Convolvulus** L. *Black Bindweed.* Cult gr., &c. 1-4 ft. An. 8-9, st. climb., ang.; ls. arrow-shaped, stalked; stip. short; fl. small, gr.-white, in slend. axill, and term. rac. of 4-10-fld. clusters; peri.-segm. bluntly keeled, white-edged, sta. 8, styles 3; fr. rather rough.

Haddington, Aberlady, Longniddry, Leith, New Hailes, Gogar, Carlowrie, Kirkliston, South Queensferry.

aviculare L. *Knot-grass.* Wa. pl. 6-36 in. An. 7-9, most variable; st. procumb. or erect; ls. small, lanc. stalked, gen. blunt; ocrea membr., torn; fl. very small, pinkish, axill. or term. 1-3-fld. clusters, sta. 8, styles 3; fr.-peri. white-edged; fr. dull, minutely wrinkled.

Gosford, Longniddry, Port Seton, Roslin, Blackhall, Ratho, Kirkliston, Abercorn, Linlithgow.

(*c*) **littorale** Link.

Gosford, Granton.

1666 **Hydropiper** L. *Water-Pepper, Biting Persicaria.* Moist pl. 1-2 ft. An. 7-10, creep.; st. rooting at base; ls. lanc., wavy; ocrea swollen, fringed, gland.; fl. greenish, in slend. droop. loose spike, leafy at base; cal. gland., sta. 6, styles 2; fr. large, flat, rough—taste hot.

Roslin.

1669 **Persicaria** L. *Spotted Persicaria.* Wa. pl. 1-2 ft. An. 7-10, plant erect, often reddish; ls. lanc., gen. spotted, stalked, upper-ls. sess., hairy on both sides; ocrea fringed with fine bristles, loose; fl. red or white, in short, dense, erect spike, sta. gen. 6, styles 2 or 3 half-united; fr. 3-sided, smooth.

Haddington, Gullane, Aberlady, Penicuik, Blackhall, Cramond, Kirkliston, Winchburgh, Westerton.

1672 **amphibium** L. *Floating Persicaria.* Strs., &c. 2-3 ft. Per. 7-8, st. rooting, float.; ls. ov.-obl., obl.-lanc. (very variable); fl. rose-red, in close, obl. spike; ocrea smooth, membr., close; sta. 5, anthers protrud., styles 2 half-united; fr. flattened, glossy.

Haddington, Aberlady, Duddingston, South Queensferry, Linlithgow.

1673 **Bistorta** L. *Bistort, Snake-weed, Snake-root.* Moist mead. 1-2 ft. Per. 6-9, st. simp.; ls., ov.-lanc., cord., waved, glauc. beneath, on long, winged stalks, upper-ls. almost sess.; fl. pink, in dense, term. spike, sta. 8 long, styles 3; nut 3-sided, smooth.

Aberlady, Eskbank, Oxgangs, Roslin, Craigcrook, Balerno, Ratho, Carlowrie.

365 OXYRIA Hill.

1677 **digyna** Hill. = **reniformis** Hook. *Mountain Sorrel.* Wet rocks on high hills. 4-8 in. Per. 6-8, ls. mostly rad., rather fleshy, smooth, kidney-shaped, slightly notched at end, long-stalked; fl. small, green, in slend., leafless, spike-like rac. of 2-3-fld. clusters; perianth 4-cleft, sta. 6, styles 2; nut flattened, round, with broad membr. wing.

Pentlands.

366 RUMEX L. St. erect, grooved, ocrea or sheath.-stipules, tubular turning ragged; fls. many, small, gr. turning red, in rac. or pan. of clusters, peri. deeply 6-cleft, inner segm. gen. enlarging and closing over nut; sta. 6, styles 3, stigmas feathery; fr. a triang. nut cov. by peri.-segm.

1678 **glomeratus** Schreb. = **conglomeratus** Murr. *Sharp Dock.* Wa. pl. 1-3 ft. Per. 7-9, ls. ov.-lanc. often ptd., wavy, narr. above base; fl. in pan. of distant, leafy clusters; peri.-inner-segm. lin.-obl., blunt, ent., equal, each with large wart.

Longniddry, Duddingston.

1680 ***sanguineus** L. *Red-veined Dock, Blood-Dock.* Wa. pl. 1-3 ft. Per. 7-10, ls. ov.-lanc., fiddle-shaped, wavy, veined-red, lr.-ls. cord. at base, petiole black; fls. in loose pan. of distant clusters, leafy only at base, peri-segm. obl., blunt, ent., inner narr. with wart.

(*b*) **viridis** Sibth. = **memorosus** Schrad. = **condylodes** Bieb. *Wood Dock.* A green-veined R. sanguineus L.

Biel, Tynninghame, Tynehead, Yester, Archerfield, Prestonhall, Dalkeith, Hopetoun, Abercorn.

1686 **obtusifolius** L. *Broad-leaved Dock.* Wa. pl. 2-3 ft. Per. 7-9, ls. broad, ov.-obl., cord., blunt, wavy, upper-ls. lanc.; fl. in loose pan. of distant clusters, leafless above; inner-peri.-segm. long, triang., ptd., veined, one with large, reddish wart.

Haddington, Gullane, Longniddry, Auchindinny, Gogar, Ratho, Abercorn, Philipstoun, Linlithgow.

1687 **crispus** L. *Curled Dock.* Wa. pl. 2-4 ft. Per. 6-8, ls. lanc., acute, wavy, crisp-edged, upper-ls. smaller; fl. tinged red, in long, narr. pan. of crowded, distant, leafless clusters; inner-peri.-segm. equal. cord. with small, smooth wart on one.

Gullane, Aberlady, Longniddry, Comiston, Cramond Island, Gogar, Abercorn, Hopetoun, Carribber.

× **obtusifolius = acutus** L. = **pratensis** M. & K. Wa. pl. 2-3 ft. Per. 7-8, ls. obl.-lanc., acute; fl. in distinct but not distant clusters, inner-peri.-segm. unequal, cord. enlarged, with small, triang. pt., one with wart.

Lasswade, Leith, Slateford.

1694 **Acetosa** L. *Sorrel.* Past. 1-2 ft. Per. 5-7, rad. ls. long-stalked, arrow-shaped, with broad. ptd. ears; upper-ls. few, nearly sess., ocrea brown; fl. reddish, dioecious, in long, term. leafless pan., outer-peri.-segm. reflexed in fr., inner round, membr. with scale at base—taste acid.

Gifford, Gullane, Longniddry, Roslin, Auchindinny, Glencorse, Gogar, Ratho, Abercorn, Hopetoun.

1695 **scutatus* L. *French Sorrel.* Wa. pl. 1-2 ft. Per. 6-7, ls. grayish, ovate, hastate, rather fiddle-shaped; peri.-segm. nearly round., cord., membr.

Craigmillar.

1696 **Acetosella** L. *Sheep's Sorrel.* Dry past., &c. 3-15 in. Per. 5-7, lr.-ls. hastate, often tinged red; ocrea silvery; fl. reddish, small, dioecious, in slend. term. pan. with erect branches; peri.-segm. erect, not warty.

North Berwick, Gullane, Longniddry, Blackford, Cramond, Dalmahoy, Abercorn, Linlithgow, Carribber.

66. THYMELIACEAE.

Daphne Family—Shrubs with simple ent. ls.; fl. sweet-scented, perianth tubular, 4-lobed, sta. 8, ovary 1-celled; fr. drupe with 1-seeded stone.

369 DAPHNE L. Ls. simp., alter.; fl. perf., peri. coloured, tubular, 4-lobed, sta. 8 included.

1699 **Mezereum** L. *Mezereon.* Plantations. 1-3 ft. Per. 3-4, shrub with few branches, erect; ls. lanc., narr. below; fls. pink, 3 together, sess. on last year's shoot, appear. before ls.; peri.-segm. ov.-acute; fr. ovoid, red.

Dalhousie, Roslin.

1700 **Laureola** L. *Spurge Laurel, Lowry.* Plantations. 2-4 ft. Per. 2-4, shrub; ls. at top of bare st. lanc., narr. below, smooth, glossy, leathery, *evergreen*; fl. funnel-shaped, gr.-yell., with bracts, in droop. axill. 5-fld. clusters; fr. ovoid, blue-black.

Arniston, Dalkeith, Roslin, Bo'ness, Avonside.

67. ELEAGNACEAE.

Sea Buckthorn Family—Shrub with short, spiny branches; ls. alter., simp., ent., silvery; fls. dioecious, small, perianth 2-6 lobed, sta. 4, ovary 1-celled; fr. nut enclosed in fleshy perianth—berry-like.

370 HIPPOPHAE L.

1701 **Rhamnoides** L. *Sea Buckthorn.* Coast. 1-8 ft. Per. 5-6, willow-like shrub; branches end in spines; ls. alter., lin.-lanc., ent., silvery with scale-like hairs; fls. greenish, dioecious; male-fl. very small in catkin-like clusters, scales ovate; peri. tubular, 2-lobed, sta. 4, sess. included; fem.-fl. sol. axill. peri. 2-lobed, stig. long; fr. nut enclosed in fleshy, persist. perianth, like glob. orange berry.

Tynninghame, North Berwick, Gullane, Aberlady, Port Seton, Prestonhall, South Queensferry, Hopetoun.

70. EUPHORBIACEAE.

Spurge Family—Trees, shrubs or herbs, gen. with milky juice; ls. alter. simp.; fls. small, imperf.; perianth 3-4-cleft or 0, sta. 1, 4, or 8-20, styles 2-3; fr. 2-3 celled capsule.

Key to Genera.

I. *Herbs:*
  1. *Flowers monoecious, with cup-shaped involucre; juice milky* . . . . *Euphorbia* 373
  2. *Flowers dioecious, perianth 3-partite, juice not milky* . . . . . *Mercurialis* 375

II. *Bush or tree; ls. small, oval, leathery, evergreen* *Buxus* 374

373 EUPHORBIA L. Plant with milky juice; st. simp.; ls. alter.; ped. axill., upper ped. in term. umbel of 2-5 rays, each ray usually forked, with oppos. bracts at each fork; fl.-hd. (monoecious) of 1 fem.-fl. surrounded by 10-15 male-fls., with roundish, yell. or brown glands alter. with the 4-5 lobes of the cup-shaped involucre; male-fl. consists of 1 sta. with minute scale at base, on a straight ped., fem-fl. of 3-celled ovary on curved ped.; style 2-fid; fr. 3-lobed, 3-seeded.

1705 **Helioscopia** L. *Sun Spurge.* Cult. gr. 6-18 in. An. 6-10, ls. obov., toothed above, glauc.; umbel large, spread., golden-gr., of 5 repeatedly-forked rays; capsule smooth, seeds netted, wrinkled.

Aberlady, Longniddry, Turnhouse, Carlowrie, Carribber.

1714 **Esula* L. *Leafy Spurge.* Str.-sides. 1-3 ft. Per. 6-8, creep.; st. slend., simp. or with a few flowerless axill. branches; ls. long, lanc. toothed, thin, glauc., smooth; umbel of 10-20 forked rays, bracts cord., blunt, mucron.; invol.-lobes with 2-horns; capsule rough, seeds smooth.

Duddingston, Gladsmuir, Colinton, Abercorn.

1715 **Cyparissias* L. *Cypress Spurge.* Grassy pl. 9-15 in. Per. 6-7, creep; ls. lin., ent., glauc., turn. crim.; umbel of many forked rays, bracts blunt, kidney-shaped; invol.-lobes 2-horned; capsule warty, seeds pale, smooth.

Gorebridge, Pomathorn, Bonnyrigg, Colinton, South Queensferry, Granton.

1718 **Peplus** L. *Petty Spurge.* Cult. gr. 6-12 in. An. 7-11, plant light gr.; st. tinged red, branched; ls. broad-ovate, stalked; umbel of 2-3 repeatedly forked rays; bracts broad-ovate; glands crescent-shaped with long pt.; capsule small, smooth, winged, seeds pitted, keeled.

North Berwick.

1719 **exigua** L. *Dwarf Spurge.* Cult. gr. 4-9 in. An. 7-10, st. branched; ls. lin.-acute, umbel of 3-5 forked rays; bracts lanc.-acute, unequal at base; invol.-lobes rounded, 2-horned, glands with fine pts.; caps. small, rough-angled, seeds pitted, whitish.

Yester, Longniddry, Musselburgh, Kirkliston.

1720 **Lathyris** L. *Caper Spurge.* Woods, &c. 1-4 ft. Per. 6-7, plant stout, fleshy, glauc., tinged red; ls. lin.-obl. oppos. decuss. (in 4 rows), upper-ls. broader, cord. at base; umbel of 3-4 unequal, irreg.-forked rays; bracts large, ovate-lanc.; invol.-lobes with blunt horns; capsule very large, smooth, seeds ridged, wrinkled.

Seton Mains, Prestonhall.

374 BUXUS L.

1721 ***Sempervirens** L. *Box.* Plantations. 2-15 ft. Per. 4-6, evergreen shrub much branched, twigs downy; ls. ovate (1 in.), oppos. leathery, glossy above; fl. whitish-green minute, monoecious, male and fem. in same axil; male-fl. with 1 bract, cal. 3-partite, pet. 2, sta. 4; fem.-fl. with 3 bracts, cal. 4-partite, pet. 3, styles 3; capsule 3-celled, 6-seeded.

Yester, Gosford, Prestonhall, Arniston, Dalkeith, Craigiehall, Carlowrie, Philipstoun.

375 MERCURIALIS L. Ls. oppos. toothed, stalked, stip.; fl. green, usually dioecious, in clusters, peri.-segm. 3, male-fl. 9-12 sta.; fem.-fl. 2-celled ovary, 2 long styles; fr. capsule.

1722 **perennis** L. *Dog's Mercury, Herb Mercury.* Woods. 6-20 in. Per. 3-5, creep.; st. simp., erect; ls. stalked, obl.-lanc. toothed, hairy; fl. gr. in axill. clusters; male-fl. several, in rac., fem.-fl. 1-2 together, styles 2, long; capsule cov. with warts or soft prickles.

Gifford, Gosford, Longniddry, Arniston, Roslin, Gogar, Carlowrie, Hopetoun.

1723 ***annua** L. *Annual Mercury.* Cult. gr. 6-18 in. An. 7-11, st. branched; ls. ov., smooth, thin, stalked; fl. gr., dioecious; male-fl. in axill. clusters, on slend. peds.; fem.-fl. sess., 2-3 together.

Tranent, Portobello.

71. URTICACEAE.

Nettle Family—Trees, shrubs, herbs with simp. ls.; fl. small, perianth 3-8 cleft or 0, sta. 3-8, style 1-2, ovary 1-2 celled; fr. dry, one-seeded.

Key to Genera.

I. *Tree :*
  1. *Flowers perf. in clusters ; fr. round, flat, winged ; ls. alter.* . . . . . *Ulmus* 376

II. *Tall climber :*
  1. *Flowers dioecious in catkins, bracts large, oppos. lobed* . . . . . *Humulus* 377

III. *Herbs :*
  1. *Stinging plant ; fl. imperf. in rac. ; ls. oppos.* . . . . . *Urtica* 378
  2. *Non-stinging plants ; fl. of 3 kinds in axill. clusters ; ls. alter.* . . . . . *Parietaria* 379

376 ULMUS L. Tree, decid. ; bark gray, rough, crumpled ; ls. alter. rough ; fl. small, perf. before ls. in clusters, perianth bell-shaped, 4-5 cleft, persist., sta. 4-5, styles 2, ovary 1-2-celled ; fr. a thin, flat, membranous-winged capsule—samara 1-seeded.

1724 **montana** Stokes = **Scabra** Mill. *Wych or Scots Elm.* Woods, &c. 60-120 ft. Per. 4-5 ; bark furrowed, twigs downy ; ls. nearly sess., broad-ovate, with long pt. unevenly cord. at base (lopsided), irreg. doubly toothed, very rough above, strongly ribbed, downy beneath ; fl. reddish, in dense clusters surrounded by brown bracts ; fr. samara, gr., roundish, flat, winged all round, *slightly notched, seed in centre.*

Gifford, Haddington, Longniddry, Roslin, Blackford, Dalmeny, Carlowrie, Philipstoun.

1725 ***compestris** L. p.p. = **sativa** Mill = **surculosa** Stokes. *English Hedgerow Elm.* 6-120 ft. Hedges, &c. Per. 4-5 ; suckers many, twigs slend. but corky ; ls. stalked, small, ovate, shortly acum., rough above, downy beneath, doubly toothed ; fr. obov., winged all round, *deeply notched* almost to seed.

Tynninghame, Dalkeith, Prestonfield.

377 HUMULUS L.

1729 **Lupulus** L. *Hop.* Hedges. Climber. 4-12 ft. Per. 7-9, st. rough, ls. oppos. stalked, broad-cord., palmate, 3-5 lobed, sharply toothed, very rough ; stip. joined ; fl. dioecious, male-fl. small, yell.-gr. in loose pan. in upper axils, peri.-segm. 5, sta. 5 ; fem.-fl. in ovoid, axill. catkins ("cones") of broad crowded bracts, each with 2 sess. fls. in axil, peri. of 1 scale, with ovary, stig. 2, long, lin. ; bract enlarges in fruit.

Musselburgh, Ravelston, Slateford, Cramond, Dalmeny, Kirkliston.

378 URTICA L. Plant with stinging hairs ; ls. oppos. ; fl. imperf. in axill. spikes or clusters ; male-fl. perianth of 4-segm., 4 sta. ; fem.-fl. peri., 2 segm. or 2 large and 2 smaller, 1 sess., tufted stig. ; fr. flat, seed-like nut enclosed in perianth.

1730 **dioica** L. *Common Stinging-Nettle.* Wa. pl. 1-6 ft. Per. 6-9, creep. ; ls. oppos. ov.-cord., coarsely toothed, downy, dk.-gr., cov. with stinging bristles ; fl. gr., *dioecious*, in axill. branched, spread. spikes.

North Berwick, Gullane, Longniddry, Fala, Roslin, Ratho, Kirkliston, Bo'ness, Linlithgow.

1731 *pilulifera* L. *Roman Nettle.* Wa. pl. 1-3 ft. An. 6-8, ls. ov.-lanc., reg. toothed, smooth, save for venomously stinging hairs ; fl. gr., *monoecious*, male-fl. in spike of distinct clusters, fem.-fl. in glob. hd. on 1 in. stalk.

North Berwick, Leith, Slateford.

1732 **urens** L. *Small Stinging-Nettle.* Wa. pl. 9-24 in. An. 6-9, ls. ellip., smooth, save for stinging hairs, deeply toothed ; fl. monoecious, spike simp., short, 2 together, axill. *male and fem. fls. intermixed* in small, loose, nearly sess. clusters.

Canty Bay, Gullane, Polton, Granton, Linlithgow.

379 PARIETARIA L.

1733 **ramiflora** Moench. = **officinalis** L. p.p. = **diffusa** M. & K. *Pellitory-of-the-Wall.* Old walls, &c. 6-20 in. Per. 6-9, st. prostr., branched, reddish, brittle ; ls. stalked, ellip , 3-nerved, hairy, ent., alter. ; fl. gr., mostly imperf. in small axill. sess. clusters surrounded by involucre of 2-3-lobed bracts ; male-fls. few, peri.-segm. 4, sta. 4 ;

fem.-fl. peri. tubular, 4-lobed, stigma tufted; also a few perf. fls.

East Linton, Haddington, Aberlady, Borthwick, Craigmillar, Dundas, Linlithgow.

(b) *Flowers in Catkins.*

72. MYRICACEAE.

Bog Myrtle Family—Aromatic, marsh shrub with alter. simp. ls.; fls. small, imperf. in short catkins, perianth 0, sta. 4-8, stig. 2; fr. small, drupe-like, 1-seeded nut.

380 MYRICA L.

1734 **Gale** L. *Bog-Myrtle, Sweet Gale.* Bogs. 2-3 ft. Shrub 6-7, plant fragrant; ls. lanc., alter., shortly stalked; fl. dioecious in sess., erect catkins along ends of branches, male-catkins with 4 or 8 sta. in each scale, peri. 0; fem.-fl. with 2 ovaries in each scale and 2-lobed peri.-adhering to base; stigma lin., protrud.; fr. very small nut.

Blinkie Burn Moor, Lammerlaws, Pentlands, Ravelrig.

73. CUPULIFERAE.

Oak Family—Trees or shrubs with alter. simp. stipulate ls.; fl. small, imperf. in catkins, sta. 2-20, ovary 2-3 celled; fr. nut.

Key to Genera.

I. *All flowers in catkins; fr. small, flat, dry:*
  1. *Fem. catkin-scale thin, decid.; ls. triang., doubly toothed* . . . . . *Betula* 381
  2. *Fem. catkin-scale woody, persist.; ls. rounded, apex broad, notched, irreg.-toothed, leaf-bud stalked* . . . . . *Alnus* 382

II. *Male-fls. in catkin, fem.-fls. in pairs in axil of bract:*
  1. *Male catkin-scale 3-cleft, nut small with 3-lobed wing, in droop. clusters; ls. oval, dull, doubly toothed* . . . . . *Carpinus* 383

  2. *Male catkin-scale roundish; nut with leafy husk; ls. coarse, broad-oval, abruptly long-ptd., doubly toothed* . . . . *Corylus* 384

III. *Male-fls. in catkins; fem.-fl. 1-3 in involucre:*
  1. *Male-catkin slend., droop.; fem.-fl. sol. in cup-shaped involucre; ls. irreg., 6-8-lobed* . *Quercus* 385
  2. *Male-catkin slend., erect, fem.-fls. 3 in 4-lobed, spiny involucre; ls. very large, obl. ptd., toothed* . . . . . *Castanea* 386
  3. *Male-catkin globose; em.-fls. 2-4 in 4-lobed capsule; ls. oval, ent., glossy, wavy* . . *Fagus* 387

381 BETULA L. Slend. trees with light, often droop. branches, bark thin, flaked, peeling; ls. broad-ovate, pointed, toothed; veins raised, stalked; fl. monoecious; male-fls. in long catkins; fem.-fls. in short, compact catkins, on same tree; no peri., ovary flat, styles 2; fem. catkin-scale thin, membr., fall. off with small seed-like fruit.

1735 **alba** L. = **verrucosa** Ehrh. = **pendula** Roth. *White Birch.* Heathy pl. 20-70 ft. Tree 3-4, bark white with dark streaks and patches, young twigs dark; buds conical; ls. ovate, almost triang., trunc. at base, abruptly ptd., doubly toothed, petioles slend.; fr. obov., lat. lobes of wing spread., reflexed; var. **pendula** Ait. has long droop. branches.

Yester, Haddington, Arniston, Roslin, Balerno, Carlowrie, Newliston, Philipstoun.

1736 **pubescens** Ehrh. = **tomentosa** Reith. = **glutinosa** Wallr. *Common Birch.* Woods. 6-15 ft. Tree or bush, 5-6, young twigs downy, buds ovoid; ls. ov.-acute, unequally toothed; fr. broad-obov., lat. lobes of wing erect.

Roslin, Balerno, &c.

382 ALNUS Mill.

1738 **rotundifolia** Mill = **glutinosa** Gaertn. *Alder.* Str.-sides. 20-60 ft. Tree 3-4, bark dark, furrowed, scaly; *buds stalked;* ls. rounded with broad notched apex, irreg.-toothed, axils of veins downy beneath; fls. monoecious,

male-catkin long, droop.; fem.-catkin short, ovate, very persist., ovaries 2 in each scale; fr.-catkin-scales woody, like small, gaping cones after seed-like nuts have fallen.

Yester, Haddington, Longniddry, Arniston, Inveresk, Roslin, Dalmeny, Philipstoun, Carribber.

383 CARPINUS L.

1740 **Betulus** L. *Hornbeam.* Damp pl. 20-60 ft. Tree 5-6, older trunk fluted; bark thin, smooth, gray; ls. alter., plaited when young, ellip.-ov., doubly toothed, hairy beneath, dk.-gr., not glossy above; fls. monoecious, male-fls. in long catkins; fem.-fls. in pairs in axils of leafy bracts, erect in fl., droop. in fr.; fr.-clusters near tip of twig—2 corn-like nuts with a distended triple wing.

Dunglass, Dalkeith, Duddingston, Roslin, Habbie's Howe, Colinton, Kirknewton, Carlowrie, Mid-Calder.

384 CORYLUS L.

1741 **Avellana** L. *Hazel.* Copses, hedges. 6-20 ft. Tree 2-5, bark smooth, gray, twigs brown, hairy, young twigs gland.; ls. round, ov.-cord., with suddenly elongated pt., irreg. doubly toothed, coarse, downy on both sides; fls. monoecious, male-catkin long, droop.; fem. ovoid, sess., bud with bright crimson stigma, involucre bell-shaped, lobed, torn at margin, almost enclosing a woody nut.

Yester, Haddington, Longniddry, Arniston, Roslin, Ratho, Kirkliston, Hopetoun, Carribber.

385 QUERCUS L. Trunk massive, bark gray, thick, furrowed, gnarled; *cluster of buds at tip of twig;* ls. obov., irreg. deeply 6-8-lobed, lobes rounded; fls. monoecious, male-fls. in slend. droop. interrupted catkins; fem.-fls. sol. or in clusters, each surrounded with involucre of small imbric. scales; fr. nut or acorn, obl.-ovoid, protrud. from a woody cup.

1742 **Robur** L. = **pedunculata** Ehrh. *Oak.* Woods. 60-100 ft. Tree 4-5, ls. sess. or shortly stalked; fr. long-stalked, hairs simple.

Dunbar, Yester, Haddington, Arniston, Dalkeith, Currie, Abercorn, Philipstoun, Carribber.

1743 **sessiliflora** Salisb. *Sessile Oak.* Woods. 6-100 ft. Tree 4-5, ls. long-stalked; fruit nearly sess.; hairs stellate.

Yester, Roslin, Auchindinny.

386 CASTANEA Hill.

1746 ***sativa** Mill. = **vulgaris** Lam. = **vesca** Gaertn. *Sweet Chestnut.* Plantations. 60-90 ft. Tree 4-5, bark dk.-gray, thick, deeply furrowed, strands twisted; ls. 7-9 in., obl.-lanc., acum., glossy, sharply toothed; fls. monoecious, catkins erect., of 2 kinds—male-fls. only, lower down twig, and mixed catkins near tip (with a few fem.-fls. in lower part and the rest male); fr. a large nut in very prickly capsule.

Luffness, Ormiston, Corstorphine Hill, Carribber.

387 FAGUS L.

1747 **sylvatica** L. *Beech.* Woods. 60-100 ft. Tree 4-5, bark thin, olive-gray, buds light brown, spindle-shaped, alter.; ls. shortly stalked, ovate, ent., wavy, glossy; young ls. plaited, fringed with silky hairs; fls. monoecious, male-fls. crowded in rounded clusters on slend. droop. stalks: fem. erect on short stalk; fr. of two 3-sided nuts in hard bristly capsule.

Dunbar, Yester, Longniddry, Dalkeith, Roslin, Bilston, Abercorn, Philipstoun, Carribber.

74. SALICACEAE.

Willow family—Trees or shrubs with alter. stip. ls.; fls. dioecious, all in catkins; sta. 2-30, ovary 1-celled; fr. many-seeded capsule; seed with slend. tuft of hair.

Key to Genera.

1. *Leaves narr.; catkins erect, bracts ent., peri.* 0, *sta.* 1-5 . . . . . *Salix* 388
2. *Leaves broad; catkins droop., bracts notched, sta.* 4-30, *peri. cup-shaped* . . . . . *Populus* 389

388 SALIX L. Trees or shrubs; ls. longer than broad, stalked, alter., simp., decid.; fls. dioecious in erect catkins, usually before the ls., male-fls. soon fall, peri. 0, bracts ent., downy, rarely smooth, sometimes brownish at tip, nectary 1-2 glands.; sta. 2, 3 or more, ovaries superior, sess. or stalked, stig. 2, ovules many, small; seeds wrapped in silky hairs.

A most difficult genus for various reasons:—hybrids are very common, the catkins usually come before the leaves, the male and female are on different trees, and during growth there are often changes of character in both flowers and leaves; but the relative length of the pedicel and nectary is an important character—"very fairly constant in the same species and in the case of hybrids always (with one or two exceptions) between the limits of their range in the two parent species."—E. F. Linton.

Key to Groups of Species.

I. *Catkin-bracts not blackened at tip; sta. 2 or more, free:*
  1. *Leaves smooth, glutinous; fl.-bracts decid., nect. 2, sta. 4-8, ovary nearly sess.* . . *Pentandrae*
  2. *Leaves soon smooth; fl. bracts persist., male-fl. with 2 nectaries, sta. 3, ovary-ped. long* . *Amygdalinae*
  3. *Leaves soon smooth; fl.-bracts decid. nect. 1, sta. 2, ovary-ped. short, style long* . . *Fragiles*
  4. *Leaves silvery at first; fl.-bracts soon fall, nect. 1, sta. 2, ovary nearly sess.* . . . *Albae*

II. *Catkin-bracts blackened at tip, downy; sta. 2:*
  A. *Sta. adnate, each with 4-celled anther:*
    1. *Branches and ls. smooth from first* . . *Purpureae*
  B. *Sta. 2 free (or joined only at very base):*
    1. *Ovary-pedicel lengthens until 3-4 times as long as the squarish nectaries, when ripe:*
      (1) *Styles usually short or 0; stip. broad, leafy* . . . . . *Capreae*
      (2) *Styles long* . . . . . *Phylicifoliae*
      (3) *Styles rather short; stip. 0 or small, narr. ov.; ls. promin.-veined; dwarf shrubs* *Argenteae*
    2. *Ovary-pedicels 0 or very short; styles long; nect. lin., ovaries sess.* . . . . *Viminales*

Pentandrae.

1748 **pentandra** L. *Bay-leaved Willow.* Riv.-bks. 8-20 ft. Tree 5-6, bark dk.-brown; ls. ellip.-lanc. (2-4 in.), gland., glossy above, pale, dk.-veined beneath; catkins appear with the ls., ov., stalked; bracts obl., decid., sta. 5, anthers yell.; ovary awl-shaped, ped. short, lower ones twice as long as the 2-fid. nectary, style short or 0, stigma 2-lobed —fragrant.

Woodhall, Roslin, Bavelaw, Mid-Calder.

Amygdalinae.

1749 **triandra** L. *Almond-leaved Willow.* Riv.-bks. 20-30 ft. Tree 4-5, bark flaking; ls. obl.-lanc. (2-4 in.), toothed, smooth, dk.-gr. above, glauc. beneath; stip. large, round; catkins (with the ls.) obl.-ov., stalked, bracts narr., obl., yell., sta. 3, nect. of male-fl. double; ovary ovoid, on long ped., 3-4 times as long as the short, broad, single nect.; stigma sess.

Granton, Craigcrook, Saughton.

Fragiles.

1750 **fragilis** L. *Crack Willow, Withy.* Riv.-bks. 60-80 ft. Tree 4-5, twig olive, very fragile at base—"cracking" easily and cleanly; ls. (3-5 in.) lanc. pointed, toothed, smooth; catkins with the ls., bracts obl.-lanc., pale, decid.; sta. usually 2, much longer than bracts, ovary taper. to long style; pedicels 1½-3 times as long as the square nectary.

Arniston, Duddingston, Ravelrig, Carriden, Roslin, Penicuik, Drem, Colinton, Mid-Calder, Inveresk.

Albae.

1751 **alba** L. *White Willow.* Riv.-bks. 20-80 ft. Tree 4-5, twig tough, olive, clothed with silky hairs; ls. (2-4 in.) lanc.-acum., finely toothed, silky on both sides; catkins with the ls., bracts pale, lin., decid.; ovary ovoid, blunt; lower pedicels short, as long as square nect.; style short, stig. deeply cut; sta. gen. 2.

Tyne, Gullane, Roslin, Edinburgh Parks, Cramond, Carriden.

Purpureae.

1754 **purpurea** L. *Purple Willow.* Riv.-bks. 5-20 ft. Shrub. 3-4, twig tough, purplish, smooth, shining; ls. lin.-lanc., thin gland., toothed, dull gr. above, glauc. beneath, leathery; stip. 0; catkins (before ls.) ov., sess. downy; bracts obov., reddish below, blackened at tip, persist., anth. 1, purple; ovary ovoid, blunt, woolly, sess.; style very short, or 0; stig. ov., often purplish.

Inveresk, Roslin, Water of Leith, Coltbridge, Kirkliston.

Viminales.

1755 **viminalis** L. *Osier.* Damp pl. 20-30 ft. Shrub 4-6, twig very pliant, buds crowded above, downy; petioles very short, with dilated bases; ls. (4-10 in.) lin.-lanc., acum., wavy edges, silky beneath; catkins (before ls.) long, sess., bracts blackening above; ovary ovoid, woolly; nect. lin., much longer than very short pedicels; style long, nearly as long as the long, slend. stig.; capsule woolly.

Tyne, Esk, Carriden.

Capreae.

1759 **aurita** L. *Round-eared Sallow.* Woods. 2-8 ft. Shrub 4-5, bark reddish-brown, stip. large, kidney-shaped, irreg.-toothed; ls. (2 in.) obov., with short, twisted tip, wavy, coarsely toothed; veins promin. beneath, dull gr., very downy at first; catkins before ls., bracts narr., obl., blunt, pale, rusty below, blackening at tip; ovary small, silvery; pedicels 3-4 times as long as the very short nectary; stig. small, gen. sess.

Bavelaw.

1760 **caprea** L. *Goat Sallow.* Woods. 10-30 ft. Tree 4-5, branches and buds downy; ls. (2-5 in.) ov.-ellip., acute, dk.-gr. above, densely downy beneath; catkins (before ls.) ovate, very silky, bracts lanc.-acum.; clothed with long silky hairs; ovary-pedicel 4-6 times as long as the short nect.; style short, gen. shorter than stigma.

Newbattle, Roslin.

1761 **cinerea** L. *Gray Sallow.* Woods. 10-20 ft. Tree 4-5, young branches, woolly even in winter; ls. very variable (1-3 in.), ellip.-obl., downy, dull, gray-gr. above, glauc. beneath; catkins before ls., bracts. obov., clothed with silky hairs, anth. yell.; ovary-pedicel 3-5 times as long as the short, squarish nect.; ovary gray-gr.; style very short, shorter than stigma.

Roslin, Ratho, Dalmahoy.

× **Smithiana** Willd. = aggregate of the hybrids of *S. viminalis*, with *S. aurita*, *S. caprea*, and *S. cinerea* (Andersson and E. F. Linton).

Musselburgh, Roslin, Colinton, Craigcrook, Carriden.

Argenteae.

1762 **repens** L. *Creeping, or Dwarf Willow.* Heaths. 1-3 ft. Shrub 4-5, very variable; st. prostr. or ascend.; ls. (2 in.) obl.-lanc., shining above, silky beneath, edges reflexed; catkins gen. before ls., bracts obl., clasping ovary, downy on back, reddish, then blackening; ovary downy; pedicels 3 times as long as the short, broad nect.; style short.

Lammerlaw, Cobbinshaw, Ravelrig, Drumshoreland.

Phylicifoliae.

1764 **phylicifolia** L. *Tea-leaved Willow.* Str.-sides. 6-10 ft. Shrub 4-5, branches smooth, dk.-brown, polished; buds yell.; ls. (1-3 in.) ellip., lanc., glossy above, glauc. beneath; catkins before ls.; bracts lin.-obl., acute, anth. yell.; ovary woolly, pedicel 3-4 times as long as the squarish nect.; style long, gen. longer than the large stigma.

Inveresk, Bavelaw, Pentlands.

389 POPULUS L. Trees with broad ls. on long slend. stalks, catkins droop., bracts irreg. toothed at tip; peri. small, cup-shaped, dioecious; sta. 4-30 free; ovary 1-celled, styles 2, with deeply forked stig.; fr. 2-valved capsule, seeds minute, with tuft of long silky hairs.

1770 *alba* L. *White Poplar, Abele.* Hedges, planted. 30-90 ft. Tree 3-4, bark ash-coloured, young shoots very

downy; ls. roundish, more or less cord. at base, wavy or irreg. lobed, white-downy beneath; catkins droop., sess. (2 in.), bract membr., cut at tip, decid.; sta. 8. stig. 2-4 lin., lobed, yellow.

Inveresk, Roslin, Habbie's Howe, Edinburgh.

1772 **tremula** L. *Aspen.* Woods. 40-60 ft. Tree 3-4, shoots and buds downy; ls. nearly round (1 in.), acute, cord. toothed, thin, smooth, very pale beneath; leaf-stalk so slender and long that leaf quivers continually; catkins droop., small, dense; bracts deeply cut; sta. 6-8, stig. 2, deeply 2-fid, purple.

Roslin, Logan House, Pentlands, Ratho, Dalmeny, Linlithgow.

75. EMPETRACEAE.

Crowberry Family—Small heath-like shrub with evergreen ls., fl. minute, dioecious, perianth of 6 scales, sta. 3, ovary 6-9 celled; fr. a drupe.

390 EMPETRUM L.

1774 **nigrum** L. *Crowberry, Crake-berry.* Moors. 6-18 in. Shrub 5-6, creep.; ls. lin., edges rolled, small, crowded, evergreen; fl. sess., minute, axill., dioecious, calyx red, sta. 3; fr. black drupe.

Aikengall, Lammermoors, Fala, Habbie's Howe, Allermuir, Pentlands, Ravelrig.

76. CERATOPHYLLACEAE.

Hornwort—Submerged water plant with whorled, divided ls., fl. monoecious, sta. 12-20, ovary 1-celled, style 1; fr. small nut.

391 CERATOPHYLLUM L.

1775 **demersum** L. *Common Hornwort.* Ponds, &c. 1-3 ft. Per 6-7, st. float.; ls. whorled, 2-4-forked, dk.-gr., segm., lin., slightly toothed; fl. small, sess., axill., with whorl of minute bracts; calyx-segm. notched; male-fls. 12-20, sess. anthers; fem.-fl. 1 ovary with simp. style; fr. ov. with 2-4 curved spines at base, beak long, curved.

Dunsappie Loch, Duddingston Loch, Canal.

1776 **submersum** L. *Unarmed Hornwort.* Ponds, &c. 1-3 ft. Per. 6-7, ls. distant, pale gr., 3 times forked; lf.-segm. bristle-like; cal.-segm. ent.; fr. without spines, warty when ripe.

Linlithgow Loch.

B.—MONOCOTYLEDONS.

77. HYDROCHARIDEAE.

Water-Soldier Family — Aquatic herbs with submerged or floating ls.; fls. reg., enclosed in sheath or spathe, sep. 3, green, pet. 3, sta. 3-12, style 1, stig. 3-9, ovary 1 or 3-6-celled; fr. berry.

Key to Genera.

1. *Leaves lin., whorled; fls. small, float., pink*	*Elodea*	392
2. *Leaves sword-shaped, prickly; fl. large, white*	*Stratiotes*	395

392 *ELODEA* Michx.

1777 **canadensis* Michx = *Anacharis alsinastrum* Bab. *Canadian Water Thyme.* Strs., &c. 1-4 ft. Per. 7-10, st. submerged, leafy, brittle, rooting at joints; ls. lin., 3-4 in whorl; fls. dioecious, fem.-fl. sess. in upper axils in small 2-lobed spathe, peri.-tube slend., with 3-6 spread segm. at top.

Pressmennan Loch, Braids, Canal, Linlithgow.

395 STRATIOTES L.

1780 ***Aloides** L. *Water Soldier.* Still water. Per. 7-8, plant submerged, creep.; ls. all rad., stiff, ascend., sword-shaped (6-18 in.), prickly-toothed on edges, brittle, dk.-gr.; ped. (5-6 in.) 2 ang.; spathe of 2 bracts (1 in.); fl. white, male-fl. stalked, sta. 12, staminodes many; fem.-fl. sol., sess., peri.-tube long, swollen below, with six 2-fid. styles,

ovary 6-celled. Plant rises to surface before flowering, then sinks to the bottom.

Haddington, [*Duddingston*], [*Blackhall Qu.*], [*Linlithgow Loch*].

78. ORCHIDACEAE.

Orchid Family—Herbs with tuberous roots, 2 or more sheathing ls., fl. very irreg. in simp. rac., sep. 3, pet. 3, sta. 1-2, ovary 1-celled; fr. many-seeded capsule.

Key to Genera.

I. *Brown saprophytic plant:*		
1. *Fl. yell.-brown, peri. hooded, lip 2-fid., pouched*	*Neottia*	399
II. *Green-leaved herbs:*		
A. *Lip not spurred:*		
1. *Lip. lin., 2-lobed; fl. green, peri. spread; ls. 2 oppos.*	*Listera*	400
2. *Lip ent., pouched; lat. sep. gr., spread.; spike 1-sided*	*Goodyera*	402
3. *Lip lobed, constricted:*		
(1) *Fls. erect, in spike; ovary twisted*	*Cephalanthera*	404
(2) *Fls. droop., in rac.; ovary straight, on twisted st.*	*Epipactis*	405
B. *Lip spurred:*		
1. *Glands of pollen-masses in pouch:*		
(1) *Pollen-glands united in pouch*	*Anacamptis*	406
(2) *Pollen-glands distinct in pouch*	*Orchis*	408
2. *Glands of pollen-masses naked, distinct*		(*Habenaria* 412-416)
(*a*) *Leaves several:*		
(1) *Spur long, slend.; lip-lobes blunt, equal; lat. sep. spread.; fl. rose-purp.*	*Gymnadenia*	412
(2) *Spur short; lip-lobes acute, unequal; sep. in hood; fl. yell.-white*	*Leucorchis*	414
(3) *Spur v. short, 2-lobed, inflated; lip. lin., deflexed; fl. green with brown lip*	*Coeloglossum*	415
(*b*) *Leaves 2:*		
(1) *Spur long., slend.; lip lin., ent.; sep. spread.*	*Platanthera*	416

399 NEOTTIA Adans.

1784 **Nidus-avis** Rich. *Bird's-Nest Orchid.* Woods, on fallen beech ls. 6-18 in. Per. 6-7, saprophytic, pale brown plant; st. with sheathing brown scales instead of ls., smooth; fl. brown in dense cylind. spike; sep. broad-ovate, acute; pet. rounded, forming hood; lip long, deeply 2-cleft, lobes diverging.

Dunglass, Gifford, Haddington, Tynehead, Dalkeith, Dalhousie, Prestonhall, Arniston, Auchindinny, Dryden, Cramond, Society, Hopetoun, Kirkliston, Almondell, Carribber.

400 LISTERA Br. Ls. only 2, almost oppos.; fl. small, green, in rac., sep. broader than pet., spread., not spurred; lip lin., lobed.

1785 **cordata** Br. *Small Twayblade.* Turfy moors. 3-6 in. Per. 6-8, st. slend., ang., smooth; ls. 2 oppos., sess., cord.-acute, thin (1 in.); fl. very small, in loose spike; lip 2-fid. with 2 side lobes.

Gifford, Bush, Habbie's Howe, Pentlands, Balerno, Ravelrig, West Linton.

1786 **ovata** Br. *Twayblade.* Woods, past., &c. 6-24 in. Per. 5-7, plant coarse; st. downy above; ls. 2 oppos. broad-ellip. (3-8 in.), ribbed; fl. small, gr., in long, loose rac.; lip 2-fid.

Gifford, Aberlady, Gosford, Currie, Meadowbank, Balerno, Abercorn, Kirkliston, Hopetoun, Carribber.

402 GOODYERA Br.

1790 **repens** Br. = **Epipactis repens.** Cr. *Creeping Goodyera.* Pine woods. 4-10 in. Per. 6-8, upper part of plant cov. with minute stalked glands, creep.; st. downy, slend., with lin. adpressed bracts; ls. few, ov. (1 in.), netted brown, downy beneath, stalked; fl. small, gr.-white, in 1-sided spike.

Gifford, Dalmeny Woods.

404 CEPHALANTHERA Rich.

1793 **ensifolia** Rich. = **longifolia** Frit. *Narrow-leaved Helleborine.* Hilly woods. 9-24 in. Per 5-7, creep.; st.

leafy; ls. obl.-narr.-lanc., bracts short; fl. erect, sess. in spike, pure white; lip blunt, lobed, constricted, pouched, with raised white lines and yell. spot; ovary smooth, twisted, longer than bracts.

Dalmahoy.

405 EPIPACTIS Cr. = **HELLEBORINE** Hill.

1797 **latifolia** Sw. *Broad-leaved Helleborine.* Woods, road-sides. 1-3 ft. Per. 7-9, plant very variable; ls. strongly ribbed; lr.-ls. broad-ov., clasp.; upper-ls. lanc.; bracts long; fl. green with purp. lip, droop., in long, 1-sided rac.; lip small, lobed, constricted, with small recurved pt.; ovary downy, shorter than bracts.

Dunglass, North Berwick, Gorebridge, Dryden, Balerno, Meadowbank, Dalmeny, Dundas, Carribber.

406 ANACAMPTIS Rich. = **ORCHIS** L.

1800 **pyramidalis** Rich. *Pyramidal Orchid.* Past. 6-18 in. Per. 7-8, rt.-tubers ent.; ls. lin.-lanc., acute; spike dense, pyramidal at first; fl. rose-purp., sep. lanc., spread.; lip broad, spurred, 3-lobed, lobes obl., equal. trunc., spur long, very slend., longer than the long ovary; pollen-glands united in pouch.

Archerfield.

408 ORCHIS L. Rt.-stock, with fleshy tubers, st. leafy at base, ls. sess., sheathing; spike term., gen. red-purp. (or whitish), sep. almost equal to pet., lip deflexed, gen. 3-5 lobed, produced at base into spur; pollen-masses (pollinia) 2, distinct, with their glands in one pouch.

1803 **purpurea** Huds. = **fusca** Jacq. = **militaris** Sm. (not L.). *Great Brown-winged, Old Woman Orchid.* Woods. 1-2 ft. Per. 5-6, st. stout; ls. obl., blunt (3-5 in.), fl. in dense spike, gr.-red with dk.-purp. hood, lip paler, with raised red pts. and short spur, mid-lobe broad, short, ob.-cord. cren. 2-fid with pt. in notch, side-lobes lin.-obl.

Canty Bay.

1807 **mascula** L. *Early Purple Orchid.* Woods, &c. 6-12 in. Per. 4-6, rt.-tubers 2; ls. lanc., spotted, bract 1-veined, coloured; spike loose; fl. purp. mottled, sep. acute, spread., 2 lat. reflexed upwards; lip short, spotted, downy, reflexed at sides, mid-lobe notched; spur stout, blunt, as long as ovary.

Canty Bay, Gifford, Gullane, Aberlady, Balerno, Ratho Ravelrig, Dalmeny, Hopetoun, Carribber.

1809 **incarnata** L. *Marsh Orchid.* Very marshy pl. 9-12 in. Per. 6-7, rt.-tuber palmate; st. hollow; ls. narr. from broad base, hooded, unspotted; fl. rosy-flesh colour, lat., sep. spread.; lip 3-lobed, cren. reflexed at side, unspotted, spur awl-shaped, shorter than ovary.

Gullane, Aberlady, Balerno.

1810 **praetermissa** Dr. *Marsh Orchid.* Marshy pl. 9-20 in. Per. 6-8, rt.-tubers 2-3 palmate; st. hollow; ls. lin., obl.-lanc., narr. from broad base to hooded or thickened tip, unspotted; bracts often coloured, as long as fl., sometimes leafy; spike cylind., somewhat loose; fl. various shades, dull rose-purp., variously marked; lip broad, flat at first, more or less distinctly 3-lobed; upper sep. usually paler, divaricate; spur curved, cylind., shorter than ovary.

Canty Bay, &c.

(*b*) **pulchella** Dr. 6-9 in.

Luffness.

1811 **purpurella** Steph. = **cruenta** Rolfe, &c. *Little Purple Orchid.* Fields, &c. Per. 6-7, st. nearly solid; ls. broadest in middle, spotted; fl. bright purple.

Aberlady.

1812 **latifolia** L. *Marsh Orchid.* Marshy pl. 9-12 in. Per. 5-6, rt.-tuber palmate; st. hollow; ls. lanc., acute, not hooded, spots ring-shaped, bracts longer than ovary; fl. deep purp., lat. sep. spread.; lip slightly 3-lobed, cren. lined, spur awl-shaped, shorter than ovary.

Canty Bay, Gullane, Aberlady, Auchencorth, Balerno, Ravelrig, Hopetoun, Linlithgow, Carribber.

1813 **elodes** Gris = **ericetorum** Linton = **praecox** Webs. = **maculata** L. ("true"). *Spotted Orchid.* Heathy pl. 6-12 in. Per 6-8, plant rather slend.; ls. gen. spotted;

spike short, conical; fl. lilac-purp. or white with faint markings; lip broad, 3-lobed, mid-lobe short; bracts small.

Pentlands, Auchencorth, Balerno, Ravelrig, Kirkliston Reservoir.

1814 **Fuchsii** Dr. = **maculata** Sm. *Spotted Orchid.* Woods, past., &c. 9-15 in. Per. 5-6, plant stiffer; st. solid; ls. rather fleshy, broader than O. elodes, marked with rings or squarish blotches; spike cylind. at last, bracts longer than fl., cor. usually lilac with dark distinct markings; lip 3-lobed, mid-lobe long.

Tynninghame, Canty Bay, Gullane, Aberlady, Dalmeny, Hopetoun, Carribber.

412 GYMNADENIA Br.

1821 **conopsea** Br. = **Habenaria conopsea** Benth. = **Orchis conopsea** L. = **Habenaria Gymnadenia** Dr. *Fragrant Orchid.* Heathy past. 8-12 in. Per. 6-8, rt.-tuber palmate; ls. lin.-lanc., acute, keeled; bracts 3-veined; spike cylind. dense; fl. hooded, lat. sep. spread., spur long, slend., flex., twice as long as ovary, cor. rose-purp., unspotted, lip 3-lobed, lobes equal, ent., blunt; glands of pollinia naked—fragrant.

Longyester, Pomathorn, Balerno, Dalmahoy, Harburn.

414 LEUCORCHIS Mey.

1824 **albida** Mey. = **Habenaria albida** (L.) Br. = **Gymnadenia albida** Rich. *White Orchid.* Hilly past. 6-12 in. Per. 6-8, rt.-tubers clustered; ls. obl.-lanc., lr.-ls. blunt, upper acute; fl. small, yell.-white hooded, lip acutely 3-lobed, lobes unequal, ent., mid-lobe largest; spur much shorter than ovary; pollinia-glands naked—fragrant.

Longyester, Gladhouse, Dalmahoy, Whitburn.

415 COELOGLOSSUM Hartm.

1825 **viride** Hartm. = **Habenaria viridis** (L.) Br. *Frog Orchid.* Dry hilly past. 4-8 in. Per. 6-8, rt.-tubers palmate; ls. obl., blunt, spike loose; fl. green, striped red-brown, hooded, bracts long, spur very short, inflated; lip lin. deflexed, brownish, 2-3 fid, with 3 tubercles at base; pollinia-glands naked, connected by raised line.

Canty Bay, Aberlady, Newbattle, Pomathorn, Habbie's Howe, Pentlands, Dalmahoy.

416 PLATANTHERA Rich. = **HABENARIA** *p.p.* Leaves 2, large oval, glossy, st.-ls. like bracts; fl. whitish, hooded, sep. spread; spur twice as long as ovary; lip lin., ent.; pollinia-glands naked.

1826 **bifolia** Reichb. fil. = **Habenaria bifolia** (L.) Br. *Small Butterfly Orchid.* Moist heath, &c. 8-12 in. Per. 6-8, st. slend. ang.; fl. small, white in slend. spike; anther-cells parallel—fragrant.

Aikengall Moor, Gullane, Auchindinny, Pentlands, Ravelrig, Carribber.

1827 **chlorantha** Reichb. = **Habenaria chlorantha** Bab. = **H. virescens** Dr. = **H. chloroleuca** Rid. *Large Butterfly Orchid.* Wet heathy pl. 8-15 in. Per. 6-8, plant larger than *P. bifolia*; fl. large, gr.-white; spur stout, deflexed; anther-cells diverging at base—fragrant.

Balerno, Ravelrig, Carribber.

79. IRIDACEAE.

Iris Family—Herbs with rhizomes or corms, ls narr., fl. showy, sep. pet., sta. 3 each, ovary 3-celled, stig. 3, placent. axile; fr. capsule.

418 IRIS L. Herbs with fleshy rhizome, ls. mostly rad., sword-shaped; fl. large, with membr. spathe, sep. 3, large, petal-like, reflexed; pet. 3, erect, style stout, with 3 broad petal-like lobes, arching over the 3 sta.; capsule 3-celled, many-seeded.

1829 **foetidissima** L. *Stinking Iris, Gladdon.* Copses. 2-3 ft. Per. 5-7, st. ang.; ls. narr., deep gr.; smell disagreeable when bruised; fl. livid, purp., rarely yell.; peri. beardless, seeds orange-red, persist. through winter.

Arniston, Seacliff.

1831 **Pseudacorus** L. *Yellow Water Iris, Flag.* Marshes, &c. 1-4 ft. Per. 5-8, st. round; ls. sword-shaped, almost as long as st. (1-2 in. broad) glauc. gr.; fl., 2-3, in a sheath, large, erect, bright yell.; fr. green capsule (2-3 in.), 3-ang., seeds, pale brown.

Pressmennan, Gullane, Longniddry, Dalhousie, Duddingston, Ratho, Dalmeny, Hopetoun, Linlithgow.

80. AMARYLLIDACEAE.

Snowdrop Family—Herbs with bulbs; narr. ls.; fls. reg.; sep. 3, pet. 3, sta. 6, ovary 3-celled, placent. axile; fr. many-seeded capsule.

424 GALANTHUS L.

1846 ***nivalis** *Snowdrop.* Woods, &c. 6-10 in. Per. 2-4, bulb small, ls. 2, rarely 3, narr.-lin.; fl. sol., droop., perianth of 6 free segm., 3 outer larger, spread. pure white, 3 inner, erect. notched, marked with green.

Dirleton Castle, Gosford, Arniston, Dalkeith, Eskbank, Roslin, Dalmeny, Craigs, Kirkliston.

82. LILIACEAE.

Lily Family—Mostly herbs with rhizomes or bulbs, fl. reg., sep. 3, pet. 3, sta. 6, ovary 3-celled, seeds 3 or more, in berry capsule.

Key to Genera.

I. *With rhizome:*
- A. *Fruit berry-like:*
  - 1. *Stem branching:*
    - (a) *St. woody; fls. on cladodes* . . *Ruscus* 427
    - (b) *St. herbaceous; fl. axill.; ls. minute scale-like* . . . . . *Asparagus* 428
  - 2. *Stem simple:*
    - (a) *St. many-leaved; fl. axill.; peri. tubular, 6-cleft* . . . . *Polygonatum* 429
    - (b) *Ls. 2-3 rad.; peri. nearly glob.; fl. in rac.* . . . . . *Convallaria* 431
    - (c) *Ls. whorled, 4, net-veined; fl. gr., 4-parted* . . . . . *Paris* 445

- B. *Fruit a capsule:*
  - 1. *Ls. grass-like; peri. spread., yell.* . *Narthecium* 443

II. *With bulb. fruit, a capsule:*
- 1. *Flowers in term. raceme:*
  - (a) *Perianth bell-shaped, blue or pink* . *Scilla* 435
  - (b) *Perianth very spread., white or green* . *Ornithogalum* 436
- 2. *Flowers in umbel* . . . . *Allium* 433

427 RUSCUS L. The only British shrubby monocotyledon.

1850 **aculeatus** L. *Butcher's Broom, Kneeholm.* Copses. 1-2 ft. Shrub 3-4, rhizome stout; st. branched with flattened leaflike, evergreen branches (cladodes) in axils of minute scale-like, decid. ls.; cladode tip spiny.; fl. dioecious; perianth green, on centre of cladode; fr. a red berry.

Dirleton, Dalkeith, Roslin, Colinton.

428 ASPARAGUS L.

1851 **maritimus** Mill. = **officinalis** L. p.p. *Asparagus.* Sea-cliffs, &c. 6-18 in. Per. 6-7, st. prostr. at base, with tufts of bristle-like branches (cladodes) in axils of small, membr. ls.; fl. small, gr.-white, on slend. ped., droop.; fr. red berry.

Gullane, Gosford, Slateford.

429 POLYGONATUM Hill. Rhiz. fleshy; st. leafy; fl. axill., droop, tubular; peri. 6-cleft, sta. 6 free, style slend., stig., 3-sided, ent., ovary 3-celled; fr. berry-like.

1853 **multiflorum** All. *Common Solomon's Seal.* Woods. 2-4 ft. Per. 6-7, st. round, droop.; ls. alter. (3-5 in.), ovate-lanc.; fl. 2-5 in droop., axill., clusters; perianth, narr. in middle, white with green tips, filament downy; fr. bluish-black berry.

Ormiston, Musselburgh, Prestonfield, Craigmillar, Arniston, Colinton, Kirkliston.

1854 **officinale** All. = **odoratum** Dr. *Angular Solomon's Seal.* Woods. 6-18 in. Per. 5-6., st. ang.; ls. 3-4 in.: fl sol. (or 2), in axil; filament smooth.

Kirkliston.

431 CONVALLARIA L.

1856 **majalis** L. *Lily of the Valley.* Woods. 4-9 in. Per. 5-6, creep.; ls. 2 (or 3), rad. in scaly sheath, 4-6 in., long, ovate-lanc., taper at both ends; rac. 6-12 fld.; fl. droop., almost glob., white, fragrant; fr. red berry.

Arniston, Colinton, Kirkliston.

433 ALLIUM L. Bulbous; ls. rad., sheathing; fl. in term. umbel, in spathe of 1-3 membr. bracts; peri.-segm. 6; fr. 3-celled capsule.

1862 **vineale** L. *Crow Garlic.* Wa. pl. 1-3 ft. Per. 6-8, ls. cylind., hollow, faded at flowering time, umbel glob., dense, spathe 1 bract with long pt.; fl. pink-purp., bulbils gr. or red, mixed with fls.

Traprain Law, Arthur's Seat, Craiglockhart, South Queensferry, Kirkliston, Manuel.

1864 ***carinatum** L. *Keeled Garlic.* Banks, &c. 6-15 in. Per. 7-8, ls. lin., grooved, flat at tip; spathe 2 bracts, 1 very long; fl. rose-pink, sta. twice as long as perianth.

Musselburgh, Calton Hill, Kirkliston.

1865 **Schoenoprasum** L. *Chives, Chive-Garlic.* Str.-sides. 6-15 in. Per. 6-7, ls. cylind., hollow; umbel dense, glob. head, without bulbils; peri.-segm. purplish, very pointed; spathe bracts 2, short; sta. short.

Musselburgh, Dalkeith, Craigmillar, Gilmerton, Dreghorn.

* *paradoxum* Don. *Siberian Garlic.* Str.-sides. 6-12 in. Per. 7-8, leafy at base, ls. grooved, inrolled at tip; fl. bell-shaped, white; peri.-segm. ellip.-obl.; with bulbils.

Saltoun, Winton, Inveresk, Little France, Lasswade, Braid Burn, Colinton, Gogar, Carlowrie, Ecclesmachan.

1868 **ursinum** L. *Ramsoms.* Woods. 6-12 in. Per. 4-7, ls. all rad., thin, flat, 6-8 in., ov.-lanc., 2 in. broad, stalked; fl. 10-12, in flat-topped umbel, white; peri.-segm. lanc., very spread.; sta. short.—very strong garlic smell.

Gifford, Musselburgh, Elginhaugh, Arniston, Roslin, Bilston, Balerno, Craigs, Kirkliston.

435 SCILLA L.

1872 **non-scripta** H. & L. = **Hyacinthus non-scriptus** = **S. nutans** Sm. = **festalis** Salisb. = **Endymion** Dum. = **Agraphis** Link. *Wild Hyacinth.* Woods. 6-18 in. Per. 4-6, ls. grooved, long, acum.; fl.-st. stout, rac. 1-sided, 6-12 fld; fl. blue, rarely pink or white, droop., each with small bract; peri. almost tubular, segm. spread. at top only.

Dunglass, Yester, Inveresk, Arniston, Roslin, Lymphoy, Dalmahoy, Dalmeny, Hopetoun, Carribber.

436 ORNITHOGALUM L.

1874 **umbellatum** L. *Star-of-Bethlehem.* Woods and past. 4-12 in. Per. 4-5, ls. long, lin., grooved, acum., with white stripe; raceme corymbose; peri.-segm. white, very spread., with broad green band on back.

Roslin, New Hailes, Woodhall, Kirkliston, Dalmeny.

443 NARTHECIUM (L.) Huds.

1883 **ossifragum** Huds. *Bog-Asphodel.* Bogs. 6-12 in. Per. 7-8, creep.; ls. grass-like, rigid, ribbed, acum.; rac. term.; fl. bright yell.; peri.-segm. spread., lanc. ptd., green on back, anther orange, filam. white-woolly; fr. very long, ptd., red capsule.

Aikengall Moor, Penicuik, Balerno, Ravelrig.

445 PARIS L.

1885 **quadrifolia** L. *Herb Paris, True-Love.* Woods. 6-12 in. Per. 5-7, creep.; st. simp., with single whorl of 4 *net-veined*, ovate, acute ls. (2-4 in.); fl. sol., 1-2 in. above ls., yell.-gr.; peri.-segm. narr.; fr. black, 4-celled berry.

Pressmennan, Arniston, Newbattle, Roslin, Currie.

83. JUNCACEAE.

Rush Family—Grass-like plants with narrow leaves and small brown flowers, sep. 3, pet. 3, carpels 3, sta. 6, ovary 1-3 celled; fr. capsule.

Key to Genera.

Perianth glumaceous:

Leaves nearly cylind., smooth; capsule 3-celled	*Juncus*	446
Leaves flat, generally hairy; capsule 1-celled	*Luzula*	447

446 JUNCUS L. Smooth marsh plants; ls. stiff, cylind.; fl. in irreg. pan., with dry sheath. bract under each cluster; perianth more or less membr.; sta. 6, rarely 3; style 1, with 3 stigmas; capsule 3-celled, with many seeds.

1886 **bufonius** L. *Toad-Rush.* Damp pls. 1-8 in. An. 7-8, st. slend., leafy, forked; fl. sol., mostly sess.; peri.-segm. lanc., longer than fr.; caps. obl., blunt.

Haddington, Slateford, Canal Banks, Linlithgow.

1888 **squarrosus** L. *Heath Rush.* Heaths. 6-12 in. Per. 7-8, st. leafless, simp.; ls. all rad., lin. grooved, stiff; cyme term.; peri.-segm. ov.-lanc., as long as fr.; bracts broad, membr.; caps. obl., blunt, mucron.

Saltoun, Fala, Swanston, Bavelaw, Whitburn.

1889 **compressus** Jacq. *Round-fruited Rush.* Moist pls. 12-20 in. Per. 7-8, tufted st., with leaf in middle; rad. ls., lin. grooved; cyme compact; peri.-segm. ov.-obl., blunt, shorter than fr.; caps. obovoid, mucron.

South Queensferry, Granton to Cramond, Ravelrig.

1890 **Gerardi** Lois. *Round-fruited Sea Rush.* Salt marshes 6-15 in. Per. 7-8, st. creep.; ls. lin. grooved; peri.-segm. as long as fr.; caps. obovoid, strong, mucron.

Tynninghame, Aberlady, Longniddry, Cramond, Abercorn, Blackness.

1894 **inflexus** L. = **glaucus** Leers, Ehrh. *Hard Rush.* Wet pls. 1-3 ft. Per. 7-8, st. stiff striate, gray-gr., with interrupted pith; pan. much branched; peri.-segm. narr., lin., as long as fr.; sta. 6, sheath brown; caps. ellip., black.

Yester, Aberlady, Longniddry, Duddingston, Boghall, Balerno.

1895 **effusus** L. = **communis** Mey. p.p. *Common Rush.* Wet pls. 1-3 ft. Per. 7-8, st. soft, faintly striate, pith continuous; ls. 0 or minute at top of sheath. bract; pan. loose; sta. 3; peri.-segm. lanc., longer than fr.; caps. obov., notched, not mucronate.

Prestonhall, King's Park, Ratho.

1896 **conglomeratus** L. = **communis** Mey. p.p. *Common Rush.* Wet pls. 1-3 ft. Per. 7-8, st. soft, faintly striate, pith continuous; ls. 0 or minute; pan. dense, glob.; peri.-segm. lanc., longer than fr., sta. 3; caps. obov., notched, mucronate.

Saltoun, Longniddry, Roslin, King's Park, Elf Loch, Whitburn.

1897 **maritimus** L. **spinosus** Forsk. *Sea Rush.* Salt marshes. 1-3 ft. Per. 7-8, st. bare; ls. wiry, sharply ptd., sheaths short, pale; peri.-segm. lanc.-acute, as long as fr.; caps. obl.-acum.

Luffness, Bo'ness, Blackness.

1899 **bulbosus** L. = **supinus** Moench. = **uliginosus** Sibth. *Lesser Jointed Rush.* Bogs. 3-10 in. Per. 7-8, very variable; st. thin; ls. slightly grooved; cyme term. nearly simp.; peri.-segm. equal, acute, inner 3 blunt, almost as long as fr.; caps. narr., obl., very blunt, mucron., pale brown.

Yester, Pentlands, Cramond, South Queensferry.

1900 **subnodulosus** Schr. = **obtusiflorus** Ehrh. *Blunt-flowered Jointed Rush.* Marshes. 1-3 ft. Per. 7-8, st. 1-leaved; cyme spread., branches zigzag; peri.-segm. pale, blunt, as long as fr.; caps. ov.-acum., 3-sided, pale brown.

Dunbar, Abercorn.

1902 **articulatus** L. = **lampocarpus** Ehrh. *Shining-fruited Jointed Rush.* Wet pls. 1-2 ft. Per. 7-8, st. 3-6 leaved, compressed, conspicuously jointed; cyme pyram.; peri.-segm. brown, acum., hardly as long as fr.; caps. 3-sided, brown.

Duddingston, Slateford, Kirkliston, Abercorn.

1904 **sylvaticus** Reichb. = **acutiflorus** Ehrh. *Wood Rush.* Wet woods. 1-3 ft. Per. 7-8, st. 3-4 leaved, rather compressed, jointed; cyme pyram.; peri.-segm. brown, acum., hardly equal to fr., a 3-sided capsule.

Haddington, New Hailes, Gilmerton, Roslin, Rullion Green, Ratho, Ravelrig, Dalmeny, Philipstoun, Carribber.

447 LUZULA D.C. More or less hairy plants with soft, flat leaves often fringed with long white hairs; fls. in small clusters; capsule dry, glume-like, 1-celled, with 3 seeds at base.

1910 **pilosa** Willd. = **vernalis** D.C. *Hairy Woodrush.* Woods. 6-12 in. Per. 5-6, ls. rad., hairy, lanc., pan. slightly branched; fl. sol. on each pedicel, reflexed after flowering, style longer than sta.; peri.-segm. very pointed, shining brown, shorter than fr.; caps. blunt, seeds with sickle-shaped crest.

Arniston, Roslin, Auchindinny.

1911 **sylvatica** Gaud. = **maxima** D.C. *Great Hairy Woodrush.* Woods. 1-2 ft. Per. 5-7, ls. lanc., hairy; cyme large, doubly compound spread. in fr.; ped. long, clusters 3-fld.; peri-segm. bristle-ptd., as long as fr.; caps. ovate, mucron.; seeds minutely crested.

Yester, Saltoun, Arniston, Bilston, Roslin, Dalmahoy, Dalmeny, Hopetoun, Carribber.

1914 **campestris** D.C. *Field Woodrush.* Pasts. 4-10 in. Per. 4-6, ls. lin., hairy; cyme of 3-4 ov. compact, 6-8 fld. clusters; peri.-segm. lanc.-acum. with pale edges, longer than fr.; caps. blunt, mucron., seeds with a basal appendage.

Haddington, New Hailes, Gilmerton, Roslin, Rullion Green, Ratho, Ravelrig, Dalmeny, Philipstoun, Carribber.

1915 **multiflora** D.C. = **erecta** Desv. *Heath Woodrush.* Heaths. 6-18 in. Per. 4-6, like *L. campestris*, but peds. so shortened as to give spike-like appearance.

Haddington, Balerno, Linlithgow.

84. TYPHACEAE.

Reed Family—Erect marsh or water-plants with linear leaves; perianth 0, sta. many; fr. 1-celled, 1-seeded.

Key to Genera.

Flowers in long dense cylindrical spikes . .	*Typha*	448
Flowers in distinct globular heads . . .	*Sparganium*	449

448 TYPHA. Aquatic; ls. sword-shaped; fl.-spike term. long, dense; lower part cylind., brown., of closely packed ovaries with perianths of 2-3 slend. hairs; upper part slend., yellowish, of many sta. with peri. of slend. decid. hairs; nuts very small, downy.

1917 **latifolia** L. *Great Reed-Mace, Bulrush.* Side of ponds, &c. 3-7 ft. Per. 6-7, ls. very long, lin., flat; flowering-parts of spike contiguous, spike often 1 ft. long, rachis smooth.

Pencaitland, Prestonhall, Dalkeith, Duddingston, Newliston, Philipstoun, Binns.

1918 **angustifolia** L. *Narrow-leaved Reed-Mace.* Ponds, &c. 3-7 ft. Per. 6-7, more slend.; ls. lin., grooved beneath; spike long, slend.; fl.-pts. separated by nearly 1 in.; rachis hairy.

Prestonhall.

449 SPARGANIUM L. Aquatic; ls. sword-shaped; fl. in distinct, dense, glob. heads; lower ones fem., large, with leaflike bracts beneath; peri. 3-6 scales; upper ones, male, of sta., with minute scales.

1919 **ramosum** Curt. Huds. *Great Bur-Reed.* Ditches. 2-4 ft. Per. 6-7, st. erect, branched; ls. long, lin. sheath at base, 3-ang. below; male fl.-clusters half size fem.; fr. ovoid, shortly beaked.

Haddington, Longniddry, Musselburgh, Gogar Burn, Kirkliston, Linlithgow, Binns.

1921 **simplex** Huds. *Unbranched Bur-Reed.* Ditches, &c. 1-3 ft. Per. 7-8, st. simp; ls. long, often floating, sheath slightly grooved, not inflated; fl.-clusters fewer, distant, lower fem.-fls. shortly stalked, male ones sess., yell.; fr. obl., taper. to long beak.

Duddingston, Corstorphine.

1922 **angustifolium** Michx = **affine** Schn. = **natans** L. p.p. *Floating Bur-Reed.* Ponds, &c. Per. 7-8, st. simp.; ls. float., flat, sheath inflated; male clusters several sess., fem. stalked; fr. stalked, beak long.

Pentlands, Dalmahoy, Ravelrig, Currie.

85. ARACEAE.

Arum Family—Plants of hedgebanks or ditches, leaves broad, net-veined, or sword-shaped; perianth segments 6 or 0, sta. 1-6, ovary 1-3 celled; fr. berry-like, seeds few.

Key to Genera.

Leaves arrow-shaped, flowers monoecious, in spathe .	*Arum*	450
Leaves sword-shaped, flowers perfect, on sess. spadix .	*Acorus*	451

450 ARUM L.

1924 **maculatum** L. *Lords and Ladies, Cuckoo-pint, Wake-Robin.* Hedgebanks. 6-10 in. Per. 4-5, ls. all rad., large, arrow-shaped, net-veined, glossy dk.-gr. (often spotted), petiole sheathing; spadix half hidden in long gr.-yell. spathe (6-8 in.), contracted above base. At base of spadix several whorls of sess. ovaries with a row of hairs above (probably aborted styles), then several whorls of purp. sess. anthers with a ring of hairs above (probably aborted anthers); at end of spadix is a club-shaped, smooth, fleshy appendage of dull purp.; fr. cluster of scarlet berries after rest of plant has disappeared.

Lennoxlove, Borthwick, Arniston (3 forms), Lymphoy, Balerno, Ratho, Kirkliston, Abercorn, Carribber.

451 ACORUS L.

1926 ***Calamus** L. *Sweet Flag.* Ponds, &c. 3-4 ft. Per. 6-7, st. with long leaflike spathe beyond spadix; ls. rad., long, sword-shaped, wavy at edges; spadix lateral, cov. with perf. fls.; peri.-segm. 6 free, membr.; sta. 6—fragrant.

Pressmennan Loch.

86. LEMNACEAE.

Duckweed Family—Minute floating leafless plants with green flattened stems, rarely flowering; sta. 1, ovary 1-celled.

453 LEMNA L. Floating plants consisting of minute green leaf-like scales or "fronds" with thread-like roots on under surface, increasing gen. by budding; rarely 1-3 minute monoecious fls. in a minute membr. spathe appear on the upper surface or in notches on the edge, perianth 0, sta. 1-2, style 1; fr. bladdery, very minute.

1928 **trisulca** L. *Ivy-leaved Duckweed.* Still water. An. 6-7, frond pellucid, ellip.-lanc., narr. at one end, finely toothed at other; root 1.

Duddingston, Granton.

1929 **minor** L. *Lesser Duckweed.* Still water. An. 6-8, frond. obov., slightly convex beneath; root 1.

Haddington, Blackhall, Ratho.

1930 **gibba** L. *Gibbous Duckweed.* Still water. An. 6-7, frond obov., pale, spongy beneath; sta. 2, root 1.

Duddingston, Linlithgow.

87. ALISMACEAE.

Water Plantain Family—Marsh or water plants; sep. 3, pet. 3, sta. 6, 9 or more; carpels many.

Key to Genera.

Leaves flat, stamens 6, perianth green . . .	*Alisma*	455
Leaves triangular, stamens 9, perianth coloured .	*Butomus*	459

455 ALISMA L. Aquatic; ls. all rad., long-stalked, ov. or narr.; peri.-segm. 6, outer sepal-like; inner large, delicate; sta. 6.

1933 **Plantago-aquatica** L. *Greater Water Plantain.* Ponds. 1-3 ft. Per. 6-8, ls. cord.-ov. or lanc., 5-7 ribbed; pan. of whorled compound branches; fl. small, white or pale rose; carpels 20-30 in a ring.

Tyne Estuary, Luffness, Duddingston, Ratho, Winchburgh, Humbie Reservoir.

1935 **ranunculoides** L. *Lesser Water Plantain.* Turfy bogs. 1-2 ft. Per. 6-7, smaller plant; ls. lin., lanc., 3-ribbed; fl. in 1-2 whorls, pale purp.

Aberlady, Luffness, Hunter's Bog, Duddingston Loch.

459 BUTOMUS L.

1940 **umbellatus** L. *Flowering Rush.* Ponds, &c. 2-4 ft. Per. 6-7, creep. ; ls. rad., long, erect, 3-angled, sheath. ; fls. rose, in large umbel with 3 thin, lanc. bracts, at base ; peds. 3-4 in., peri.-segm. 6, ov. spread. petaloid ; sta. 6, carpels 6.

Prestonhall, Carberry, Duddingston, Linlithgow.

88. NAIADACEAE.

Pondweed Family—Marsh or water plants, mostly with floating or submerged leaves or both, perianth 0, or of 4-6 scaly segm., sta. 1-6, carpels 1-6 ; fr. 1-6, 1-seeded nuts.

Key to Genera.

Erect marsh herbs with rush-like leaves . .	*Triglochin*	460
Aquatic herbs with floating or submerged leaves :		
Flowers perfect :		
Perianth-segments 4, *achenes sessile* . .	*Potamogeton*	462
Perianth-segments 0, *achenes stalked* . .	*Ruppia*	463
Flowers imperfect :		
Flowers axillary, solitary, perianth absent .	*Zannichellia*	464
Flowers in long linear bract . . .	*Zostera*	465

460 TRIGLOCHIN L. Tufted ; ls. rad., lin., fleshy ; fls. in slend. raceme, yell.-gr., without bracts ; peri.-segm. 6, erect ; sta. 6, ovary 3-6 celled, stig. feathery ; fr. 3-6, carpels separating from a central axis when ripe.

1941 **palustre** L. *Marsh Arrowgrass.* Marshy pls. 6-12 in. Per. 6-8, creep. ; ls. slend., with dilated sheath at base ; peri.-segm. ov. ; ripe fr. separating into 3 carpels.

North Berwick, Gullane, Aberlady, Borthwick, King's Park, Balerno, Carriden, Blackness.

1942 **maritimum** L. *Seaside Arrowgrass.* Salt marshes. 10-12 in. Per. 5-9, like *T. palustre*, but stouter, more succulent ; ovary broader, with 6 chambers separating, when ripe, into 6 carpels.

Gullane, Aberlady, Longniddry, Blackness.

462 POTAMOGETON L. Aquatic herbs ; st. long, float. ; ls. alter. or oppos., dilated, sheath. at base or with scarious, sheath. stipule in axil ; fls. small, perfect, on axill. ped. above water, peri.-segm. 4 scale-like, sta. 4, carpels 4.

1944 **natans** L. *Broad-leaved Pondweed.* Ponds, &c. Per. 6-7, ls. leathery stalked, ellip. (2-6 in. long, 1-1½ in. broad), 5-nerved ; lr.-ls. submerged, narr., thin ; stip. close-sheathing (1 in.), petiole jointed ; fl. in dense, cylind. spike on stout, axill. ped. ; fr. ovoid.

Luffness, Duddingston, Canal, Linlithgow.

1945 **polygonifolius** Pourr. = **oblongus** Viv. *Oblong-leaved Pondweed.* Ponds, &c. Per. 6-7, plant more membr. ; ls. long-stalked (not jointed), 2-5 in., lr.-ls. submerged, narr. ; fl. in slend. spikes, irreg. ; fr. very small, red, with very short beak.

Pentlands, Ravelrig.

1947 **alpinus** Balb. = **rufescens** Schrad. *Reddish Pondweed.* Ditches, &c. Per. 6-7 ; float. ls. shortly stalked ; submerged ls. sess., translu., tinged with red, lanc., ent., many nerved ; stip. large, blunt ; fl. in stout spikes ; fr. ovoid, keeled, red.

Gullane, Pentlands, Bo'ness.

1949 **heterophyllus** Schreb. = **gramineus** L. *Various-leaved Pondweed.* Ponds, &c. Per. 6-7, float, ls. oppos., ov. or obl., 1-2 in. stalked ; submerged ls. sess., lanc., narr. at both ends, wavy ; stip. small ; fls. in dense spike on stout axill. and term. stalks, which thicken upwards ; fr. small, 3-ribbed.

Dalkeith, Gladhouse, Linlithgow.

1955 **angustifolius** Bercht. = **Zizii** Roth. *Narrow-leaved Pondweed.* Ponds, &c. Per. 7-8, plant smaller ; ls. long-stalked, obov.-obl. ; submerged ls. sess., narr., lanc., wavy at end ; fl.-spike (1-2 in.) on very long stalk ; fr. round.

Linlithgow Loch.

1957 **praelongus** Wulf. *Long-stalked Pondweed.* Rivers, ponds. Per. 6-8, st. gr.-white ; ls. all submerged, pellucid, lin.-obl., half-clasping, hooded at tip ; stip. large ; fl. in

dense cylind. spike on very long stout stalk; fr. rounded on back.

Canal.

1958 **perfoliatus** L. *Perfoliate Pondweed.* Rivers, &c. Per. 6-7, st. round, stout, ls. all submerged, pellucid, cord.-ov., clasping, 5-9-nerved, brown; stip. small, decid.; fls. in dense spike on short stalk; fr. with short beak.

Haddington.

1959 **crispus** L. *Curly Pondweed, Frog's Lettuce, Water Caltrops.* Ponds. Per. 6-7, st. slend., flattened; ls. all submerged, pellucid, close-set, 1-2 in. long, sess., obl. wavy, 3-nerved; stip. small, blunt, decid.; fl. in loose spike on taper. stalk; fr. with long beak.

Dunsappie, Duddingston, Inverleith, Canal, Humbie Reservoir.

1960 **densus** L. *Opposite-leaved Pondweed.* Shallow strs., &c. Per. 7-9, st. slend., brittle; ls. all submerged, translue., opposite, clasping, ov.-cord., toothed, 3-5-nerved; stip. 0; fl. 4 in spike on short stalk; fr. with short, curved beak.

Gullane, Duddingston, Corstorphine.

1961 **zosterifolius** Schum. = **compressus** L. *Grassy Pondweed.* Strs. Per. 7-8, st. compressed; ls. all submerged, half-clasp., lin., acum. (4-10 in.); stip. large, acute; fl. 10-15 in cylind., long-stalked spike; fr. compressed, 3-ribbed.

Manuel.

1963 **obtusifolius** M. & K. *Blunt-leaved Pondweed.* Ponds, &c. Per. 7 8, st. slend., 4-ang.; ls. all submerged, lin. (2-6 in.), sess. dk.-gr.; fl.-spike small ovoid; fr. keeled, beak straight.

Gullane, Canal.

1966 **pusillus** L. *Small Pondweed.* Ponds. Per. 6-8, st. thread-like; ls. all submerged, narr., lin., half-clasp., dull, olive-gr., tangled; fl.-spike short, loose, long-stalked; fl. brownish; fr. ov., keeled.

Yester, Musselburgh, Pentlands, Dalmahoy.

1970 **pectinatus** L. *Fennel-leaved Pondweed.* Strs. Per. 7-8, st. thread-like; ls. all submerged, thread-like (3-8 in.), tangled; stip. adnate to leaf-base; fl.-spike interrupted, stalk long, slender; fls. few; fr. ovoid, with keel.

Duddingston, Canal.

463 RUPPIA L. Marine aquatic; st. thread-like, much branched; ls. alter., lin., sheath.; fl. minute, perf., perianth. 0, anth. 2 sess., carpels 4, sess. at first; fr. ovoid.

1974 **rostellata** Koch. *Tassel Pondweed.* Salt water ditches. Per. 7-8, very slend.; ls. thread-like, sheath not inflated; fr.-ped. short, flexuous, not spiral.

Tynninghame, Gullane, Aberlady.

464 ZANNICHELLIA L.

1975 **palustris** L. *Horned Pondweed.* Brackish water. An. 5-8, st. slend.; ls. oppos., very narrow; stip. small, membr., sheathing; fl. monoecious, axill. sess., sta. 1, ovaries 4-6 stigma, sess., notched at edge; fr. curved.

Luffness, Duddingston, Ravelrig.

465 ZOSTERA L. Grass-like marine pl.; st. creep. in sand or mud under salt water; st. compressed; ls. long, lin., sheathing; fls. in base of long, lin. leaflike bract, fls. imperf. arranged alternately in spathe; sta. 1, style 1 (stig. 2).

1979 **marina** L. *Broad-leaved Grasswrack.* Salt water. Per. 6-8, st. very long, fleshy ls. 1-3 ft., 3-7-veined; fl.-sheath 1-2 in., ped. flattened; fr. obl., grooved, ripe seed milky white—found below low-water mark but often thrown up by tide.

c. **angustifolia** Hornem.

Aberlady, Leith, Granton.

1980 **nana** Roth. *Small Grasswrack.* Salt water. Per. 4-8, smaller plant; ls. 6 in. 1-3-veined, very narr.; fl.-sheath ½ in., ped. flattened; fls. few, small membr. append-

age clasping ped. at each ovary; fr. small, smooth, ripe seed shining black—found usually between high and low water mark.

Aberlady.

90. CYPERACEAE.

Sedge Family—Grass-like plants with 3-sided, usually solid stems, leaves in 3 rows with entire sheaths; flowers in green or brown spikelets; perianth 0 or of a few bristles, sta. 1-3, carpels 2-3, ovary 1-celled; fr. nut.

Key to Genera.

I. *Flowers perfect:*		
A. *Glumes of each spikelet in 2 rows* . .	*Schoenus*	478
B. *Glumes of each spikelet imbricated:*		
(1) *Bristles shorter than glumes or 0:*		
(*a*) *Spikelet 1, terminal* . . .	*Eleocharis*	469
(*b*) *Spikelets clustered, lateral* . .	*Scirpus*	470
(2) *Bristles much longer than glumes:*		
Bristles becoming silky . . .	*Eriophorum*	471
II. *Flowers imperfect; fr. enclosed in persistent, bottle-shaped perianth*	*Carex*	476

469 ELEOCHARIS Br. = **HELEOCHARIS** Lest. = **SCIRPUS** L. Tufted, smooth; spikelets sol. term., glumes imbricate, lowest gls. broader, empty; fl. perf. perianth of 3-6 bristles included in the glumes; fr. compressed, tipped with dilated base of style.

1987 **acicularis** R. & S. *Smallest Spike or Clubrush.* Wet pls. 2-6 in. Per. 6-8, creep.; st. 4-ang., sheaths leafless; spikelets dk.-brown, very small, sol. term.; gl. blunt, bristles short, decid.; stig. 3; fr. obovoid, ribbed, transversely striate.

[*Lasswade.*]

1988 **palustris** R. & S. *Marsh Spike or Clubrush.* Wet pls. 6-12 in. Per. 6-7, creep.; st. round, with membr. transversely truncate sheath; gl. imbric., brown with gr. keel, and scarious edges; lr.-gl. half surround. spikelet; term. gl. acute; stig. 2; fr. roundish, tipped with ovate base of style.

North Berwick, Aberlady, King's Park, Balerno, Linlithgow.

1989 **uniglumis** Schult. Link. *Single-glumed Spike or Clubrush.* Wet sandy pls. 6-8 in. Per. 6-7, outer gl. broader, with pale edges, almost surround. spikelet; stig. 2; fr. pear-shaped, smooth, tipped with conical base of style—occurs especially near sea.

Gullane, Blackness, Linlithgow.

1990 **multicaulis** Sm. *Many-stalked Spike or Clubrush.* Marshes. 4-12 in. Per. 6-7, tufted; st. round, with truncate leafless sheath; spikelet smaller, term. gl. blunt; stig. 3; fr. top-shaped, tipped with triang. base of style.

Gullane, Pentlands, Blackness.

470 SCIRPUS L. Aquatic plants with creep. rhizomes; fl. perf., gl. imbric., nearly equal, or lowest broader and empty; bristles 3-6 or 0; base of style thread-like, not dilated; stig. 2-3; fr. more or less triang.

1991 **pauciflorus** Lightf. *Few-flowered or Chocolate-headed Clubrush.* Marshes. 4-8 in. Per. 6-8, st. round, striate, with narr. thin, leafless sheaths, and 1 tight upper truncate sheath; spikelet ovate, few-fld.; lr.-gl. blunt; fr. obov., 3-ang. mucron., netted.

Pentlands.

1992 **caespitosus** L. = **austriacus** Palla. *Deer's Grass, Deer's Hair, Scaly-stalked Clubrush.* Wet moors. 6-12 in. Per. 6-8, densely tufted; st. round, with acute, leafless sheaths; ls. short, awl-shaped; spikelet ovate, few-fld.; 2 lr.-gls. ov., membr. awned; fr. obov.-acum., mucron., smooth.

Aberlady, Moorfoots, Penicuik, Pentlands, Blackness, Whitburn.

1994 **fluitans** L. *Floating Clubrush, Mudrush.* Peaty pools. Per. 6-8, st. float., round much branched, leafy; spikelet sol. term. ovate, few-fld.; gl. blunt, keeled, membr. at edge; stig. 2; fr. obov.

Ravelrig.

1996 **setaceus** L. *Bristle-like Clubrush or Mudrush.* Damp, grav. pls. 1-4 in. Per. 7-8, plant darker; st. thread-like, with 1-2 short, awl-shaped ls. on each st.; spikelets 1-2 sess.; outer bract long; gl. blunt, mucron.; bristles 0, stig. 3; fr. obov., 3-ang. transversely striate.

Gullane, Pentlands, Boghall.

1998 **lacustris** L. *Lake Clubrush, Bulrush.* Marshes, &c. 1-8 ft. Per. 7-8, st. erect, thick, spongy, round, leafless or with 1-2 short, keeled ls. in still water, or long nearly flat ls. in running water; cymes term. spikelets many, red-brown; gl. smooth, notched, mucron. fringed; stig. 3; fr. bluntly 3-ang.

Dunbar, Pressmennan.

1999 **Tabernaemontani** Gm. *Glaucus Bulrush.* Brackish ditches. 1-3 ft. Per. 7-9, like *S. lacustris*, but st. glaucous; float. ls. absent; gl. rough., stig. 2; fr. round-obl. compressed.

Aberlady.

2002 **maritimus** L. *Sea Clubrush.* Brackish water. 1-3 ft. Per. 7-8, st. leafy, sharply 3-ang.; ls. grooved, dk.-gr. spikelets in dense term. clusters, red-brown, bracts several leaflike; gl. acutely 2-lobed with pt. between; stig. 3; fr. obov., 3-ang., smooth.

Aberlady, Longniddry, Abercorn.

2003 **sylvaticus** L. *Wood Clubrush.* Marshes. 1-3 ft. Per. 7-8, st. leafy; ls. flat; spikelets small, ovate, gr. in loose cyme; outer bracts leaflike; gl. ent., obl.; fr. obov., bluntly 3-ang.

Saltoun, Roslin.

2004 **compressus** Pers. = **Caricis** Retz. = **Blysmus compressus** Panz. *Compressed Clubrush, Broad-leaved Blysmus.* Marshes. 4-12 in. Per. 7-9, st. 3-ang., sheathed; ls. lin., flat, rough on edges and keel; spikelets small, longer than bract; gl. few, red-brown; fr. ellip., shining.

Haddington, Borthwick, Ravelrig.

2005 **rufus** (Huds.) Schrad. = **Blysmus rufus.** Link. *Sea-side Clubrush* or *Narrow-leaved Blysmus.* Salt marshes. 3-12 in. Per. 7-9, st. slend., round; ls. smooth, grooved; spikelets usually not longer than bract; bristles decid., gl. dk.-brown, polished; fr. ovate, beaked.

Aberlady.

471 ERIOPHORUM L. Tufted; spikelets term.; fls. perf., perianth bristles elongate into long silky hairs, causing fl.-head to look like a cottony tuft; gls. nearly equal, imbric.; fr. 3-ang.

2007 **vaginatum** L. *Hare's-tail Cotton-grass.* Bogs. 6-10 in. Per. 4-6, tufted; st. 3-ang. above, round below; ls. bristle-like, sheath.; 1 or 2 upper sheaths inflated, often leafless; spikelet term. ovoid, dense, cottony tuft (1 in.), as perianth bristles lengthen; fr. obov.

Aberlady, Moorfoots, Bavelaw, Dalmahoy, Kaimes, Blackness, Whitburn.

2008 **angustifolium** Roth. = **polystachium** L. p.p. *Narrow-leaved Cotton-grass.* Bogs. 6-24 in. Per. 6-8, st. wiry, solid; ls. flat, grooved near base, upper part 3-ang.; spikelets in term. clusters—large dense tufts; gl. ov., thin; fr. mucronate.

Moorfoots.

473 SCHOENUS L.

2014 **nigricans** L. *Black Bogrush.* Turfy bogs. 6-24 in. Per. 6-7, tufted; st. stiff, rush-like; ls. short, stiff, sheath dk.-brown, shining; spikelets in compact head, almost black, with involucre of 2-3 broad, brown, leafy bracts with stiff pts.; stig 3; gl. pointed, with rough keel and edge.

Gullane.

476 Carex L. Grass-like herbs; ls. mostly rad.; spikelets sol. or several in term. spike, or in dense compound panicle; fls. monoecious, rarely dioecious, sta. and ovaries are always in separate glumes, even when "mixed" in the same spikelet; gl. imbric.; sta. 3, rarely 2, without perianth of any kind; ovary enclosed in inflated sack contracted at neck, through which protrudes the style with 2-3 stig. This sack persists round the seed-like fruit.

Key to Species.

I. *Spikelets simple, solitary : C. dioica, pulicaris.*
II. *Spikelets similar—2-sexual :*
  A. *Male usually at top : C. incurva, disticha, arenaria, diandra, paniculata, vulpina, contigua, divulsa.*
  B. *Male usually at base : echinata, canescens, remota, leporina.*
III. *Spikelets mainly 1-sexual—lower, female ; upper, male, usually more slender ; stigmas 2—C. Hudsonii, gracilis, Goodenowii.*
IV. *Spikelets as in* III., *but stigmas* 3.
  A. *Fruit short :*
    (1) *Fr. smooth : C. diversicolor, magellanica, pallescens, panicea, pendula.*
    (2) *Fr. hairy : C. pilulifera, caryophyllea.*
  B. *Fruit long :*
    (1) *Fr. hairy or downy : C. lasiocarpa, hirta.*
    (2) *Fr. smooth :*
      (*a*) *Male solitary : C. strigosa, sylvatica, helodes, binervis, distans, fulva, extensa, flava, lepidocarpa, Oederi.*
      (*b*) *Male several : C. acutiformis, riparia, inflata, vesicaria.*

2017 **dioica** L. *Dioecious or Separate-headed Sedge.* Bogs. 4-6 in. Per. 5-6, creep., slend. ; male and fem. spikelets on diff. plants—male, lin. pale ; fem. ovoid, brown, stig. 2, sol. term. ; fr. erect, ov., ang., rough, many-veined.

Blackford, Pentlands, Ravelrig.

2019 **pulicaris** L. *Flea Sedge.* Boggy pls. 3-8 in. Per. 5-7, tufted, small, spikelets "mixed," sol. term., upper half male, lower fem. ; stig. 2 ; fr. lanc., 3-ang., dk.-brown.

Fala, King's Park, Balerno.

2023 **incurva** Lightf. *Curved Sedge.* Damp sea-sand. 2-4 in. Per. 6-7, creep. ; st. stout, curved ; ls. grooved, inrolled ; spikelets in glob. head, male at top ; fr. broad, rather inflated, taper. to short beak.

Longniddry, Grangemouth.

2026 **disticha** Huds. = **intermedia** Good. *Soft Brown Sedge.* Marshes. 1-2 ft. Per. 6-7, creep. spikelets in obl. interrupted spike, light-brown, middle ones male ; fr. ov.-lanc., narr. winged, 2-fid, longer than gl.

Aberlady, Longniddry.

2027 **arenaria** L. *Sand Sedge.* Sea sand. 6-12 in. Per. 6-7, creep (sand-binder) ; st. tufted, rough, leafy at base ; ls. stiff, inrolled ; spikelets large, ovoid, in interrupted spike—upper male, mid mixed, lower fem. ; fr. ov., winged, veined, flattened, taper. into 2-fid beak.

Tyne Estuary, Gullane, Aberlady, Longniddry, Dalmeny.

2028 **diandra** Schrank. = **teretiuscula** Good. Ehrh. *Lesser Panicled Sedge.* Bogs. 9-18 in. Per. 6-8, creep. ; st. 3-ang. with convex sides ; spikelets few, obl.-acute, in dense compound spike ; fr. ov., swollen, ribbed, with winged beak.

Gullane, Aberlady.

2030 **paniculata** L. *Great Panicled Sedge, Tussock Sedge.* Bogs. 2-6 ft. Per. 5-7, dense tussocks ; st. stout, 3-ang., with flat sides ; ls. very sharp, rough ; spikelets many, brown, crowded in comp. pan. with spread. branches, sometimes contracted into a spike ; outer bracts with bristle pts. and membr. edges ; fr. ov., faintly veined, with 2-fid fringed beak.

Pressmennan, Gullane, Borthwick, Newbattle, Penicuik, Pentlands.

× **remota** = **Boenninghauseniana** Whe. Wet woods. 1-3 ft. Per. 6-7, tufted ; spikelets small, in long spike, without bracts ; gl. pale brown ; fr. lanc., as long as gl., upper part toothed, beak almost entire.

Crichtoun.

2031 **vulpina** L. *Fox Sedge.* Wet ditches, &c. 1-4 ft. Per. 6-7, creep. ; st. stout, 3-ang., with concave sides and rough edges, leafy ; spikelets many, gr. or pale brown, crowded into term. spike, interrupted at base ; bracts leaf-ptd. ; fr. ov.-acum., much flattened, beak 2-fid.

Aberlady, Longniddry, Dalmeny, South Queensferry.

2033 **contigua** Hoppe = **muricata** auct. angl. = **spicata** Huds. *Great Prickly Sedge.* Grav. pls. 1-2 ft. Per. 5-7, densely tufted ; st. rough ; spikelets "mixed" in compact, oval spikes, sometimes interrupted below ; fr. ov.-acum., longer than gl., finely toothed above, pointed.

Yester, King's Park, Blackford, Dalkeith, Pentlands, South Queensferry.

2035 **divulsa** Stokes. Good. *Gray Sedge.* Shady pls. 1-2 ft. Per. 5-7, more slender than last; spikelets grayish, droop. in lax spike; fr. ov.-acum., erect, 2-fid, smooth, longer than gl.; beak very small, rough at edges.

Black Hill, Pentlands.

2036 **echinata** Murr. = **stellulata** Good. *Prickly or Star-headed Sedge.* Marshes. 4-12 in. Per. 5-7, tufted; spike pale gr.; gl. ov., membr., reddish with gr. keel and white edges; fr. brown, ovate, acum., spread., beak large, 2-fid, toothed; ripe fr. star-shaped.

King's Park, Gladhouse, Roslin, Boghall, Pentlands, Balerno, Whelpside.

2037 **remota** L. *Distant-Spiked Sedge.* Shady pls. 1-2 ft. Per. 6-7, tufted; ls. grooved; outer bracts very long, leaflike; spikelets small, pale, distant, rachis 2-ang., rough in upper part; fr. ov.-lanc., longer than gl., beak notched.

Borthwick, Crichtoun, Auchindinny, Roslin.

× **vulpina** = **axillaris** Good. *Axillary Sedge.* Ditches, &c. 1-3 ft. Per. 6-7, st. sharply 3-ang.; ls. flat; bract leaflike; spikelets crowded in axil of bract; rachis straight, with 3 rough angles; gl. ovate, membr.; fr. ov.-lanc., toothed above, deeply 2-fid.

Saltoun, Musselburgh, Roslin, Balerno, Drumshoreland, Carribber.

2040 **canescens** Lightf. = **curta** Good. *Pale or White Sedge.* Bogs. 1-2 ft. Per. 6-7, tufted; st. mostly smooth, rather long; spikelets whitish, ellip. distant, stig. 2, lowest bract often bristle-like; fr. broad, ov.-acute, whitish, beak short, notched.

King's Park, Gladhouse, Pentlands, Balerno.

2041 **leporina** L. = **ovalis** Good. *Oval Sedge.* Wet pls. 8-12 in. Per. 6-7, tufted; spikelets ovoid, gr. shining, very crowded, stig. 2; glume pale brownish-gr., midrib shining; fr. ov.-acum., with membr. edge, beak 2-fid.

Braids, Moorfoots, Threipmuir, Pentlands.

2045 **Hudsonii** Ar. Benn. = **stricta** Good. = **elata** All. *Tufted Sedge.* Peaty pls. 1-3 ft. Per. 5-7, densely tufted; st. slend., stiff; ls. narr., rolled when dry; sheaths webbed; spikelets, male 1, fem. 2-3, erect, cylind.; bracts auricled, lower leaflike; fr. obl.-ellip., acute, compressed, veined, beak short.

Linlithgow Loch.

2046 **gracilis** Curt. = **acuta** auct. *Slender-Spiked Sedge.* Wa. pls. 2-3 ft. Per. 6-7, loosely tufted; ls. long; spikelets, male 2-3, fem. 2-4, long, slend.; stig. 2, lowest bract leaflike, with long auricles; fr. obl., blunt, ribbed.

Arniston, Ravelrig.

2053 **Goodenowii** Gay. = **vulgaris** Fr. = **caespitosa** Good. *Common Sedge.* Damp pls. 6-24 in. Per. 6-8, st. and ls. slend.; spikelets erect, male 1-2, fem. 3-4, cylind., short, sub-sess., near together; gl. blunt, short, purp.; fr. ellip.-veined below, beak short, ent.

King's Park, Penicuik, Auchencorth, Rullion Green, Balerno, Ratho, Dalmahoy, Blackness.

2054 **diversicolor** Crantz = **flacca** Schreb. = **glauca** Scop. = **recurva** Huds. *Glaucous Sedge.* Damp grassy pls. 4-24 in. Per. 5-7, creep.; st. wiry; ls. flat, glauc., stiff; spikelets, male 2-3, fem. 2-4, cylind., dense, long-stalked; bracts leaflike, scarcely sheath.; fr. ovoid, ent., ptd.

Woodhall, Longniddry, King's Park, Gorebridge, Boghall, Malleny, Carribber.

2055 **magellanica** Lam. = **irrigua** Sm. Hoppe. *Mud Sedge.* Boggy pl. 6-15 in. Per. 6-7, creep., slend.; ls. broad, rough only at pt.; male spikelet, 1 cylind., fem. 2-3, droop., long-stalked; gl. purp., lanc., with long pt.; bracts leafy, auricled; fr. round, ov. compressed; beak short, ent.

Roslin.

2062 **pilulifera** L. *Round-headed Sedge.* Wet heaths. 4-15 in. Per. 6-7, tufted; st. rough; ls. broad, flex.; fem. spikelets, 2-3 round, sess. close under term. male spikelet; stig. 3; gl. ov., mucron.; bract small, awl-shaped, not sheathing; fr. roundish, stalked, as long as gl.; beak short, notched.

Moorfoots, Pentlands, Boghall, Harburn, Linlithgow.

2064 **caryophyllea** Latour=**praecox** Jacq.=**verna** Chaix. *Spring Sedge.* Dry pasts. 3-10 in. Per. 4-5, creep.; ls. keeled; male spikelet 1, erect, fem. 1-3, ov. blunt, sess.; gl. ov.-acum., midrib gr., bract clasping; fr. ov., 3-ang.; base of style surrounded by cup-like disc, downy.

Gorebridge, Cramond Island, Ravelrig.

2066 **pallescens** L. *Pale Sedge.* Shady pl. 9-18 in. Per. 6-8, tufted; male spikelet term. light brown, fem. 2-3, ovate, stalked, yell.-gr., stig. 3, bract leafy; fr. ov.-obl., smooth, beak 0.

Pentlands, Ravelrig, Linlithgow.

2067 **panicea** L. *Carnation Sedge.* Marshy pls. 9-24 in. Per. 6-8, creep.; ls. flat, glauc., like carnation ls. but rough on edge; male spikelet term., fem. 2, dist., stalked; gl. brown, stig. 3; bract leafy, sheath.; fr. ov., inflated, beak short, trunc.

Duddingston, Pentlands, Boghall, Harburn.

2071 **pendula** Huds. *Great Drooping Sedge.* Damp woods. 2-6 ft. Per. 5-6, tufted; st. stout, leafy; ls. large; spikelets 4-6 in., long, droop., male one term., fem. 4-5, dense-fld., cylind., long stalks almost enclosed in sheath of bract; stig. 3; fr. ellip., inflated, beak short.

Dunglass, Arniston, Musselburgh, Dalkeith, Auchindinny.

2072 **strigosa** Huds. *Loose-Spiked Wood Sedge.* Woods. 1-2 ft. Per. 5-6, creep; st. smooth, leafy; ls. short, broad; spikelets slend., droop., 1-3 in., male 1, term., fem. 3-4, distant, stalked; gl. green, lanc.; bract leaflike, sheath.; fr. obl -lanc., narr. at both ends, veined.

Arniston.

2074 **sylvatica** Huds. *Wood Sedge.* Woods. 1-3 ft. Per. 5-6, tufted; st. weak, leafy; ls. flabby; spikelets lin., slightly droop., male term., fem. 2-4, stalked (rarely some of these are "mixed"), gl. green., narr., very ptd.; stig. 3; fr. ellip., smooth, tapering into long beak.

Yester, Roslin, Linlithgow.

2075 **helodes** Link.=**laevigata** Sm. *Smooth-stalked Sedge.* Wet pls. 1-3 ft. Per. 5-7, creep.; st. smooth; ls. broad, dotted beneath; spikelets erect, or droop., long, male 1-2, 3-ang.; fem. cylind. long, slend., gr. stalked; fr. green, ov., tapering to long 2-fid beak, with rough edge.

Yester, Haddington, Prestonhall, Arniston, Roslin, Mavisbank, Caerketton, Pentlands.

2076 **binervis** Sm. *Green-ribbed Sedge.* Heaths. 1 ft. Per. 6-7, creep.; st. smooth; ls. stiff, keeled; spikelets distant, male 1-2, fem. stalked; gl. mucron., dk.-purp., with gr.-yell. midrib.; bract sheath.; fr. smooth, ov., with 2 promin. gr. ribs on back, and broad 2-fid rough-edged beak.

Shippath Dene, Crichtoun, Borthwick, Moorfoots, Boghall, Pentlands, Linlithgow.

2077 **distans** L. *Loose Sedge.* Marshes near sea. 1-2 ft. Per. 6-7, tufted, slend.; ls. narr., glauc.; spikelets far apart, male 1, term. often with a little one close below it; fem. 4-5, obl., erect; stalks hidden in sheath of leafy bract; gl. brown, stig. 3; fr. ov. ribbed, smooth, taper. to long beak.

Gifford, Gullane, Aberlady, Longniddry, King's Park, Kinneil.

2079 **fulva** Host. = **Hornschuchiana** Hoppe. = **Hostiana** D.C. *Tawny Sedge.* Boggy pls. 12-18 in. Per. 5-7, st. rough near top, spikelets distant, male 1-2, term. spindle-shaped, acute; fem. obl., with stalks longer than the long sheaths of bracts; fr. ovoid, inflated, strongly ribbed with straight rough-edged 2-fid beak.

Prestonhall, Duddingston, Threipmuir, Ravelrig, South Queensferry.

2080 **extensa** Good. *Long-bracted Sedge.* Salt marshes. 4-18 in. Per. 6-7, tufted, slend.; st. smooth, usually curved; ls. long, very narr., rolled; spikelets nearly sess., close together at top of stem., often the lowest distant; bract very long, leaflike, sheath short; fr. ov., 3-sided, ribbed, inflated, narrowing into str. smooth-edged 2-fid beak.

Dunbar, North Berwick, Aberlady.

2081 **flava** L. *Yellow Sedge.* Wet pls. 3-18 in. Per. 5-7, densely tufted; ls. broad; spikelets yellowish, close together, often one much lower down, male 1, term. cylind. blunt, fem. 1-3 ovoid, nearly sess.; stig. 3, bract long, leafy, with

short sheath; fr. ov., inflated, spreading, ribbed, much larger than gl., narrowing to long, deflexed, rough-edged 2-fid beak.

Shippath Dene, King's Park, Hillend Park, Blackness.

2082 **lepidocarpa** Tausch. *Slender Yellow Sedge.* Wet pls. 6-12 in. Per. 5-7, tufted; ls. narr.; male spikelet on long slend. stalk; beak of fr. often nearly straight.

Pentlands.

2083 **Oederi** Retz. *Oederi's Sedge. Small Yellow Sedge.* Wet pls. 2-4 in. Per. 5-7, very like *C. flava*, but spikelets smaller; fr. smaller, more numerous, beak shorter, narrower.

Gullane, Dalmahoy, Pentlands.

(*d*) **oedocarpa** And. = **flava minor** Towns. 3-6 in. Per. 5-7, fem. spikelets distant; fr. small, more suddenly contracted into nearly straight beak.

Gullane.

2084 **lasiocarpa** Ehrh. = **filiformis** L. *Slender-leaved Sedge.* Peat bogs. 2-3 ft. Per. 5-6, creep.; ls. long, very narr., grooved; spikelets male, 2-3, slend., 1-2 in., brown; fem. 1-3, remote, nearly sess., loose-fld.; stig. 3; fr. very downy, obl.-ov., narrowing to short 2-fid beak.

Duddingston, Ravelrig.

2085 **hirta** L. *Hairy Sedge.* Wet grassy pls. 1-2 ft. Per. 5-6, creep.; st. weak, leafy, hairy; ls. flat, hairy; male spikelets 1-2 term., fem. 2-3, distant, cylind., 1 in., stalked; bracts leaflike, lower with long sheath; stig. 3, fr. tawny, hairy, ov.-obl., narrowing to short, deeply 2-fid beak.

Gullane, Aberlady, Longniddry, Moorfoots, King's Park, Cramond Island, Dalmeny.

2087 **acutiformis** Ehrh. = **paludosa** Good. = **acuta** Curt. *Pond Sedge.* Wet pls. 2-3 ft. Per. 5-7, creep.; st. angles rough; ls. large, glauc.; male spikelets 2-3, long (1-2 in.), sess., dk.-brown, with blunt gl.; fem. 2-3, long (2 in.), distant; sess., cylind., with pointed gl.; stig. 3, bracts leafy without sheaths; fr. ovate, flattened, taper. to very short 2-fid beak.

Duddingston, Roslin.

2088 **riparia** Curt. *Greater Pond Sedge.* Wet. pls. 3-5 ft. Per. 5-7, larger than *C. acutiformis;* ls. broad; male spikelets 3-6, very large, with acute gl., crowded; fem. 4-6 long, pointed, stalked; fr. obl.-ov., convex on both sides, with short, broad, 2-fid beak.

Yester, Gullane, Longniddry, Arniston, Duddingston.

2089 **inflata** Huds. = **rostrata** Stokes = **ampullacea** Good. *Slender-beaked or Bottle Sedge.* Very wet bogs. 1-2 ft. Per. 5-6, creep.; ls. long., grooved, glauc.; spikelets long, male 2-3, fem. 2-4, cylind., erect, stalked; bracts leafy, without sheaths; fr. pale yell.-gr., inflated, flask-shaped, narrowing suddenly into long, slend. beak.

Aberlady, Gorebridge, Duddingston, Balerno.

2090 **vesicaria** L. *Bladder Sedge.* Wet bogs. 1-2 ft. Per. 5-6, st. sharply angled, roughest near top; ls. flat; spikelets shorter than *C. inflata;* fr. inflated, conical, grad. narr. to awl-shaped 2-fid beak.

Auchindinny, Ravelrig, Pentlands, Linlithgow.

91. GRAMINEAE.

Grass Family—Herbs with long, round, jointed stems, usually hollow between the joints; ls. lin., parallel-veined, entire, with split sheaths and generally a small membr. scale (ligule) at junction of sheath and blade; fls. in spikelets arranged in spikes, racemes, or panicles. Each spikelet has 1-6 florets on a very short axis (rachilla), within 2 outer glumes. Each floret has a thin outer, lower flowering glume, and a delicate inner one, or palea. These may be bristle-ptd. or awned. Each floret has 1-6, usually 3, sta. with long anthers, and slender filaments. The ovary is 1-celled, 1-ovuled, with 2 (rarely 1 or 3) feathery stigmas; fruit or grain is a caryopsis.

Key to Classes.

Fls. partly or all 2-sexual, usually sta. 3 styles 2:

I. *Spikelets form single, term. often rather loose spike:*

(*a*) *Ovary with 2 stigmas* . . . *Hordeae VII.*

(*b*) *Ovary with 1 stigma* . . . *Nardoideae VIII.*

II. *Spikelets form several term. racemose spikes:*

(*a*) *Each spikelet with 2 or more fertile florets:*

1. *Outer glumes short, cov. only lr. part of spikelets:*

(*α*) *Stigmas brush-like on long style; upper fl. axis downy, silky* . *Arundinaceae VI.*

(*β*) *Stigmas feathery on short or rudim. style; axis of fls. bare* . . *Festuceae V.*

2. *Outer glumes large; at least as long as lowest fl.:*

(*α*) *Stigma feathery* . . . *Aveneae IV.*

(*b*) *Each spikelet with only 1 fertile fl.; outer gls. well developed; spikelets laterally compressed:*

1. *Style long, stigmas protruding:*

(*α*) *Spikelets with 1 fertile and several undeveloped florets* . . . *Phalarideae I.*

(*β*) *Spikelets with 1 fertile, and sometimes 1 undeveloped floret* . . *Alopecuroideae II.*

2. *Style short, stigma lateral* . . *Agrostideae III.*

Key to Genera.

I. *Phalarideae:*

(*a*) *Florets with 3 stamens* . . . *Phalaris* 481

(*b*) *Florets with 2 stamens* . . . *Anthoxanthum* 482

II. *Alopecuroideae:*

(*a*) *Spikelets form. spike-like panicle; glumes keeled:*

1. *Glumes united at base, scales absent* *Alopecurus* 484

2. *Glumes not united at base* . . *Phleum* 486

(*b*) *Spikelets form. loose panicle; glumes equal, not awned* . . . . *Milium* 485

III. *Agrostideae:*

(*a*) *Lower glume longer than upper one, both shorter than floret* . . . *Agrostis* 488

(*b*) *Lower glume shorter than upper one, both acute, just longer than palea* . *Ammophila* 493

IV. *Aveneae:*

A. *Palea with awn:*

(*a*) *Awn arising on back or from base of palea:*

(1) *Ovary hairy:*

(*α*) *Spikelets with 2 or more florets; fert. ones 2-sex., uppermost often abortive; tip of palea 2-fid, or 2-awned, with jointed awn on back* . . . *Avena* 500

(*i*) *awn short, fine, hair-like* . *Trisetum* 499

(*β*) *Spikelets with 2 florets—lr. male, with long jointed awn; upper fl. 2-sex., with minute awn, or 0* . . . . *Arrhenatherum* 501

(2) *Ovary not hairy:*

(*α*) *Spikelets with 2 florets—lr. 2-sex.—not awned, upper usually male, with jointed, recurved awn* . . . *Holcus* 498

(*β*) *Spikelets with 2 florets, rarely 3; tip of palea trunc. or toothed, awned; rachis shorter than uppermost fl.-glume* . *Aira* 495

(*i*) *Rachis longer than uppermost fl. glume* . . . *Deschampsia* 497

(*b*) *Awn arising between 2 teeth at tip of palea* . . . . . *Koeleria* 507

B. *Palea without awn:*

(*a*) *Palea with 2 or 3 teeth at tip:*

(1) *Palea with 2 large teeth and 1 small one (or mucro) between them* *Sieglingia* 503

(*b*) *Palea without teeth at tip:*

(1) *Spikelets with cluster of empty glumes at tip* . . . . *Melica* 510

(2) *Spikelets without cluster of empty glumes at tip:*

(*α*) *Spikelets with lr. male and upper 2-sexual floret* . . *Arrhenatherum* 501

(*β*) *Spikelets with 2 or more 2-sexual floret* . . . *Koeleria* 507

V. *Festuceae:*
A. *Stigmas arising below tip of ovary:*
(a) *Palea blunt without awn; cordate at base* . . . . . *Briza* 512
(b) *Palea acum. or awned; awn usually on back (rarely at tip)* . . *Bromus* 516
B. *Stigmas arising at tip of ovary:*
(a) *Palea acute or awned:*
(1) *Each spikelet with pinn. bract at base, and lat. barren spikelet* . *Cynosurus* 506
(2) *No lateral comb-like spikelets:*
(α) *Glumes and palea keeled:*
(i) *Leaf sheaths open* . . *Koeleria* 507
(ii) *Leaf sheaths close; palea awned, keel ciliate* . . *Dactylis* 511
(β) *Glumes rounded on back; sheaths usually open:*
(i) *Palea lanc.; rachis 3-ang., branches in 1 row* . . *Festuca* 515
(ii) *Palea lanc.; rachis 4-ang., branches in 2 rows* . . *Brachypodium* 517
(iii) *Palea swollen at base, taper. to narr. conical, straight pt., 5-veined* . . . . *Molinia* 508
(b) *Palea blunt or rounded at tip:*
(1) *Rachis of spikelets jointed when ripe:*
(α) *Palea rounded on back* . . *Glyceria* 514
(β) *Palea sharply keeled on back, fls. webbed with woolly hairs* . *Poa* 513
(γ) *Spikelets usually only 2-fld.* *Catabrosa* 509
(2) *Rachis of spikelets not jointed when ripe; club-like mass of empty glumes at tip; palea rounded on back* . . . *Melica* 510

VI. *Arundineae:*
Rachis bearded with long silky hairs; fr. free of palea . . . . *Phragmites* 504

VII. *Hordeae:*
A. *Spikelets inserted into hollows of rachis; each quite enveloped by stiff outer glumes* . . . . . *Lepturus* 520

B. *Spikelets free on small projections of rachis:*
(a) *Spikelets compressed laterally; inner glume generally absent except in term. spikelet* . . *Lolium* 518
(b) *Spikelets round or compressed dorsally; outer glumes more or less flat, rarely keeled:*
(1) *Spikelets not single:*
(α) *Spike with term. spikelet; paleae without awns* . . *Elymus* 523
(β) *Spike without term. spikelet; paleae with awns* . . *Hordeum* 522
(2) *Spikelets generally single:*
(α) *Outer glumes unequal* . . *Brachypodium* 517
(β) *Outer glumes equal or nearly so:*
(i) *Outer glumes swollen, keeled, acute or mucron., spike usually with 1 term. spikelet; fls. 3* . . . . . *Agropyron* 519

VIII. *Nardoideae:*
Spikelets 1-fld. in 2 rows on 1 side of rachis . . . . . *Nardus* 521

481 PHALARIS L. Pan. ovoid, cylind. or spike-like; spikelets 1-fld., broad, flat; gls. equal, boat-shaped, keeled, membr.; radim. fls. scale-like.

2103 **canariensis* L. *Canary Grass.* Wa. pl. 1-2 ft. An. 6-9, pan. imbric. ovoid, glab.; gl. acute, winged on keel, whitish with gr. lines; rudimentary fl. 2.

Musselburgh, New Hailes, Portobello, Comiston, Roslin Murrayfield, Slateford, Almondell.

2104 ***minor** Retz. *Canary Grass.* Wa. pl. 1 ft. An. 6-7, pan. cylind.; gl. winged at top; wing toothed near pt.; rudimentary fl. 1.

Portobello, Leith, Slateford.

2105 *paradoxa* L. *Canary Grass.* Wa. pl. 1-2 ft. An. 6-7, st. decumb. below; pan. spike-like; gl. with blunt, toothed wing on keel, many-veined; rudimentary fl. several.

Portobello, Leith, Comiston, Slateford.

2106 **arundinaceae** L. = **Digraphis arundinacea** Trin. *Reed Grass.* Wat. pl. 2-3 ft. Per. 7-8, creep.; ls. long, broad, in tuft at base; sheaths with overlapping membr. margins and collar-like ledge above; lig. long, acute; pan. long, rather compact; gl. lanc. ptd., keeled, whitish with gr. nerves—varieg. form known as "Gardener's Garters."

Innerwick, Gifford, Pressmennan, Prestonhall, Duddingston, Slateford, Linlithgow.

482 ANTHOXANTHUM L. Pan. as cylind. spike; gl. boat-shaped, keeled, unequal, membr.; palea scarious; 2 awns on inner gls., one straight, other kneed; sta. only 2.

2107 **odoratum** (L.) Boiss. *Vernal Grass.* Meads., pasts., &c. 6-18 in. Per. 6-7, tufted; st. slend., erect; ls. hairy at edges; sheath furrowed, downy; lig. long, blunt, with ciliate edges; pan. interrupted spike; awn. shorter than fl.; sta. 2 (with purple anthers in meads., yell. in woods) —coumarin in foliage gives scent to new-mown hay.

Innerwick, Gullane, Kidlaw Burn, Arthur's Seat, Roslin, Arniston, Rullion Green, Turnhouse, Whelpside, Balerno.

2108 **aristatum* Boiss. = *Puelii* Lec. Lam. *Vernal Grass.* Wa. pl. 4-8 in. An. 6-7, very slender, branched, bent at nodes; pan. lax; awn long, exserted; odour slight.

Leith, Granton, Slateford.

484 ALOPECURUS L. Pan. as cylind. spike; spikelets 1-fld., flat; gl. boat-shaped, keeled, united at base, membr.; palea scarious, awned.

2110 **myosuroides** Huds. = **agrestis** L. *Field Fox-tail, Black Grass.* Wa. pl. 1-2 ft. An. 5-9, st. slend., roughish; lig. thick, blunt, often coloured; ls. short; spike tapering to both ends, often purplish; gl. acute, united beyond mid., with fine cilia on back; awn twice as long as palea; anther yellow.

North Berwick, Musselburgh, Portobello, Leith, Slateford, Balerno, Linlithgow.

2112 **geniculatus** L. *Marsh Fox-tail.* Wet pasts. 8-24 in. Per. 5-9, stoloniferous; st. bent at nodes; upper sheath inflated; lig. whitish, membr., oblong; pan. cyclind., blunt, ciliate; awn rising from base of notched palea projects beyond it; anth. lin., brownish.

Innerwick, Gullane, Duddingston, Rullion Green, Blackhall, Cramond, Balerno, South Queensferry.

2114 **pratensis** L. *Meadow Fox-tail.* Meads., &c. 1-3 ft. Per. 4-6, st. erect; ls. rough at edges; sheaths long, ridged, brown, upper one slightly inflated; lig. short, blunt, ent.; pan. cylind., blunt; gl. acute, lanc., ciliate; awn twice as long as acute palea; anth. yellow.

Innerwick, Glencorse, Balerno, Turnhouse, Cramond.

485 MILIUM L. Pan. lax; spikelets stalked, 1-fld.; gl. equal, palea, like parchment, awnless, glistening.

2116 **effusum** L. *Wood Millet Grass.* Woods. 2-4 ft. Per. 6-7, stoloniferous; ls. pale gr., lin.-lanc., short, flat, tapering to sheath; lig. long, torn; pan. branches long in distant, alter. tufts; spikelets few, distant turgid, awnless.

Innerwick, North Berwick, Prestonhall, Dalhousie, Newbattle, Musselburgh, Arniston, Roslin, Prestonfield, Craigmillar, Carlowrie, Carribber.

486 PHLEUM L. Pan. cylind., ovoid or spike-like; spikelets 1-fld., flat; gl. boat-shaped, keeled, truncate with mucro; palea membr., lower 3-veined, blunt, awnless or with central pt.

2119 **pratense** L. *Timothy Grass, Cat's-tail.* Rotat. grass, pasts., &c. 1-4 ft. Per. 6-7, tufted; ls. short, with deflexed marginal teeth; lig. short, thin, smooth; spike long, cylind.; gl. truncate with broad scarious edges; awn bristle-like, not half as long as glume.

Innerwick, Haddington, Longniddry, Howgate, Roslin, Balerno, Ratho, Cramond, Kirkliston.

b. **nodosum** L. *Tuberous Timothy.* Dry grassy pls. 6-12 in. Per. 6-7, st. decumb., base swollen; ls. narr.; spike, short, slender.

Innerwick, Gorgie, Cramond, Balerno, Ratho.

d. **stoloniferum** Bab. Many barren leafy stolons.

Borthwick, Saughton, Canal, Gorgie, Cramond.

2121 **arenarium** L. *Sand Cat's-tail.* Coastal sand. 4-8 in. An. 6-7, ls. broad, folded, smooth with deflexed marginal teeth; sheaths smooth, upper inflated; lig. long; pan. blunt oval spike narrowed at base; gl. lanc.-acute; keel ciliate, side nerves promin.; lr. palea notched at tip.

Tynninghame, North Berwick, Gullane, Aberlady, Prestonpans.

488 AGROSTIS L. Pan. lax; gl. unequal, upper smaller; palea small, membr., often with dorsal awn.

2124 **canina** L. *Brown Bent.* Heathy pasts. 1-2 ft. Per. 6-7, st. ls., narr., lower ls. inrolled; sheath smooth; lig. oblong, acute; pan. close, but spread. in fr.; gl. unequal, acute; palea jagged, with awn below middle.

Innerwick, Roslin, Balerno, Bavelaw, Cramond.

2125 **alba** L. = **palustris** Huds. *White Bent.* Grassy pls. 1-3 ft. Per. 6-8, st. procumb., then erect; ls. flat, short; sheath roughish; lig. long, acute; pan. close; gl. nearly equal, lower toothed along keel, awnless.

Innerwick, Gifford, Arthur's Seat, Corstorphine, Balerno, Cramond.

b. **stolonifera** L. = **pro-repens** Koch. *Fiorin.* Damp pls. 1-1½ ft. Per. 6-8, st. procumb., with many short stolons; ls. flat, rough, tapering; lig. long, pointed, often toothed at edges, whitish; sheath nearly smooth; pan. contracted.

Innerwick, Longniddry, Cramond.

2126 **tenuis** Sibth. = **vulgaris** With. = **capillaris** L. *Fine Bent.* Dry hill pasts. 12-18 in. Per. 6-7, ls. narr.; sheath smooth; lig. short, truncate, ent.; pan. always spread; gl. nearly equal, lower toothed on upper part of keel; rarely awned.

Innerwick, Gifford, Arthur's Seat, Cramond, Blackhall, Pentlands.

493 AMMOPHILA Host. = **Psamma** Beauv.

2137 **arenaria** Link. = **arundinacea** Host. *Marram, Sea Mat-grass.* Coastal sand. 1-3 ft. Per. 6-8, stolonif.; ls. long, hard, inrolled, rough, glauc. above; sheath long; lig. very long, bifid; pan. spike-like, harsh, straw-coloured; spikelets 1 fld.; gl. tapering, acute; palea papery, lanc., mucron., with short pencil of hairs at base.

Innerwick, North Berwick, Longniddry, Port Seton, Dalmeny.

495 AIRA L. Pan. lax; fls. 2; gl. equal to lower fl.; palea toothed or bifid at tip, with dorsal awn.

2140 **caryophyllea** L. *Silver Hair Grass.* Dry soils. 6-12 in. An. 6-7, tufted, slender; pan. spread., with long, fine branches, usually in threes; sheaths rough; ls. very narr., short, inrolled; lig. membr.; spikelets small; palea bifid, with dark twisted awn from below middle, and basal hairs.

Dunbar, Borthwick, King's Park, Turnhouse, Balerno, Cramond, Ratho, South Queensferry.

2141 **praecox** L. *Early Hair Grass.* Heathy pls. 1-4 in. An. 5-7, densely tufted, rigid; sheath smooth; ls. very fine; lig. membr.; pan. spike-like; gl. scarious; palea bifid, with dorsal, hair-like awn from near base.

Gullane, King's Park, Roslin, Penicuik, Auchencorth, Corstorphine, Balerno, Dalmahoy, Dalmeny.

497 DESCHAMPSIA Beauv. = **Aira** L. Pan. lax, fls. 2, gl. equal to lower fl.; palea toothed or bifid at tip, with dorsal awn.

2143 **caespitosa** Beauv. *Tufted Hair Grass.* Wet rough pasts. 2-4 ft. Per. 7-8, coarse, tall, tufted; ls. flat, rough, with sharp ribs; lig. long, acute; pan. large; spikelets purplish; gl. lanc., pointed; palea jagged at tip, with fine awn inserted near base.

Innerwick, Lammermoors, Ormiston, King's Park, Blackhall, Cramond, Swanston, Whelpside, Balerno, Ratho.

2146 **flexuosa** (L.) Trin. *Waved Hair Grass.* Heathy pl. 1-2 ft. Per. 7-8, slender; ls. inrolled, short bristle-like; lig. short, truncate; pan. spread., flex., branches in threes; spikelets shining; rachis flex., hairy; palea toothed at tip, fine, wavy, dorsal awn and basal hairs.

Innerwick, King's Park, Roslin, Corstorphine, Balerno.

498 HOLCUS L. Small hairy grasses with red-veined sheaths; pan. open, with many crowded 2-fld. spikelets; lr.-fl. perf., awnless, upper usually male with dorsal awn.

2147 **mollis** L. *Soft Grass.* Dry woods, heaths. 1-3 ft. Per. 6-8, st. procumb., hairy chiefly at nodes; pan. open; gl. pointed; awn dorsal, kneed, exserted.

Innerwick, North Berwick, Roslin, Corstorphine, Balerno, Kirkliston, Carribber.

2148 **lanatus** L. *Yorkshire Fog.* Fields, &c. 1-2 ft. Per. 6-8, tussocks of grayish-gr. tomentose ls., hairy on both sides; lig. short, obtuse; pan. pale gr., pinkish; gl. blunt; awn includ., bent, hooked; few hairs at base.

Kidlaw, Lammermoors, Roslin, Blackhall, Gogar, Balerno, Ratho, Harburn.

499 TRISETUM Pers.

2149 **flavescens** Beauv. = **pratense** Pers. = **Avena flavescens** L. *Yellow Oat Grass.* Dry pasts. 1-1½ ft. Per. 6-7, tufted; ls. flat, slender, hairy; lig. membr., short, blunt, ciliate; pan. branched, but not very open; spikelets glistening yell., 3-fld.; gl. very unequal; outer palea with 2 term. bristles; awn hair-like, dorsal, kneed, twisted; ovary smooth.

Dunbar, Kidlaw, Fala, King's Park, Boghall, Ratho, South Queensferry, Linlithgow.

500 AVENA L. Tufted; ls. flat, hairy, ridged, thin; pan. loose; spikelets 2-5-fld.; gl. equal to lower fl.; lower palea bifid; awn long, twisted, projecting; ovary hairy at top.

2150 **pubescens** Huds. *Downy Oat Grass.* Dry pasts. 1-2 ft. Per. 6-7, like 2151, but ls. and sheaths very downy; rachilla long, hairy.

Innerwick, North Berwick, Borthwick, Corstorphine, Hallyards.

2151 **pratensis.** L. *Wild Oat Grass.* Dry pasts. 1-2 ft. Per. 6-7, tufted; ls. thin, harsh, ridgeless, keeled, glauc., smooth, with rough edges; lig. long, ovate-acute; pan. nearly simple; spikelets erect; palea like parchment, lanc., acum., bifid.

Innerwick, King's Park, Braids, Linlithgow.

2153 ***fatua** L. *Wild Oat, Haver.* Wa. pl. 2-4 ft. An. 6-7, tall; pan. loose; spikelets large, droop. on pedicels of unequal length in alter. groups; gl. long, tapering to thin, scarious point; palea bifid, with brown hairs; awn twice as long as spikelet, twisted at base, bent at middle.

Innerwick, Leith, Murrayfield.

501 ARRHENATHERUM Beauv. Pan. open; spikelets 2-fld., upper fl. perfect, with short straight awn; lower, male with long twisted awn.

2154 **elatius** M. & K. = **avenaceum** Beauv. = **Avena elatior** L. *False Oat Grass.* Hedges, &c. 2-3 ft. Per. 6-7, loose tufts with short stolons; ls. few, narr., rough; lig. truncate, hairy; pan. lax; spikelet 2-fld., upper fl. perf. with short straight awn near tip; lower, male with long, bent, twisted awn from middle; gl. thin, pointed.

Innerwick, Arthur's Seat, Blackhall, Gogar, Whelpside, Balerno, Clifton Hall.

(*b*) **bi-aristatum** (Peterm.) Dr. Fl. with 2 awns.

Levenhall Quarry.

2155 **tuberosum** Gilib. = **precatorium** Beauv. = **var. bulbosum** Presl. Rt. with swollen knobs; nodes of st. downy.

Innerwick, Levenhall, Dreghorn.

A common weed on arable land in Midlothian.

(*b*) **bi-aristatum** Fraser. Fl. with 2 awns.

Levenhall, Leith.

503 SIEGLINGIA Bernh. = **TRIODIA** Beauv.

2157 **decumbens** Bernh. *Heath grass.* Hill pasts., &c. 6-12 in. Per. 7-8, tufted; ls. narr., with few long, soft hairs on sheaths and edges; lig. tuft of hairs; pan. racemose: spikelets, 2-4-fld., turgid, awnless; gl. unequal,

acute, keeled; palea deeply concave, bifid with intermediate tooth.

Gullane, King's Park, Boghall.

504 PHRAGMITES Adans.

2158 **communis** Trin. = **vulgaris** (Lam.) Crep. = **Arundo** L. *Reed.* Riversides, &c. 2-10 ft. Per. 7-8, aquatic reed-like creep. grass, erect; ls. long, broad, rigid, glauc. below, hispid at edges; lig. fringe of hairs; sheath smooth, striate, bearded at mouth; pan. large, crowded, purplish; spikelets 3-5 fld.; gl. lanc.; palea narr., long, ent., tapering, violet, 3-nerved, smooth, rachis bearded with long, silky hairs.

Danskin, Duddingston, Dalmeny, Linlithgow.

506 CYNOSURUS L. Slightly tufted; pan. spike-like, 1-sided; spikelets with comb-like bract at base; gl. nearly equal, scarious, keeled; palea with termin. bristle.

2160 **cristatus** L. *Crested Dog's-tail.* Dry pasts. 5-24 in. Per. 7-8, slightly tufted; ls. mostly rad., short, narr.; sheath shortly split; lig. short, with minute ears, "like ledges"; pan. spike-like of sess. clusters of spikelets with comb-like bracts; palea lanc., keeled.

Innerwick, Kidlaw, Gullane, Fala, Moorfoots, Whelpside, Pentlands, Ratho, Harburn, Linlithgow.

2161 ***echinatus** L. *Rough Dog's-tail.* Wa. pl. 1-2 ft. An. 5-7, erect; ls. flaccid; spike more contracted, ovate; comb-like bracts more prominent; awns as long as paleae.

Musselburgh, Leith, Slateford, Linlithgow.

507 KOELERIA Pers.

2164 **gracilis** Pers. = **cristata** auct. = **nitida** (Lam.) Dr. *Crested Hair-Grass.* Dry pasts. 6-12 in. Per. 6-7, short, tufted, downy, pale gr.; ls. hairy, narr., tapering below, involute, ciliate, with promin. ridges alter. high and low; lig. obsolete; pan. interrupted, ovoid spike; spikelets silvery, 2-3 fld.; gl. small, keel, smooth; palea compressed, keeled, ent., smooth, stiffly tapering, hairless.

Tantallon, King's Park, Blackford Hill, Braids, Dalmeny, Linlithgow.

508 MOLINIA Schr.

2165 **coerulea** Moench. = **varia** Schr. *Purple Moor Grass.* Moorland peat. 1-4 ft. Per. 7-8, tussocks; st. wiry, with 1 joint near base; ls. narrowed below, tapering above to long pt., very thin, but stiff; sheaths smooth; lig. a tuft of hairs; pan. long, narr., lax, purplish, branches erect; spikelets 1-3-fld., small; gl. acute, unequal, awnless; paleae compressed, keeled, smooth.

Blackhope, Moorfoots, Balerno.

509 CATABROSA Beauv.

2166 **aquatica** Beauv. *Whorl Grass.* Wet meads., &c. 6-24 in. Per. 5-6, st. procumb., rooting at nodes; ls. short, lanc., blunt, flat, flaccid; sheath inflated; lig. blunt; pan. long., pyram., branches hair-like, spread., whorled; spikelets 2-fld., awnless; gl. scarious, promin. ribbed, trunc., torn at tip; palea small, broad, flat trunc.

Craigentinny, Duddingston, South Queensferry, Linlithgow.

510 MELICA L. Pan. slender; ls. ridged underneath; sheath ent., spikelet ovate, 1 or 2 fld., awnless; gl. equal, veined; palea becomes hard and shiny in fruit.

2167 **nutans** L. = **montana** Huds. *Mountain Melic Grass.* Hilly woods. 1-2 ft. Per. 5-6, ls. thin, dry, sparsely hairy; lig. short, blunt; pan. one-sided, nearly simp. raceme; spikelets 2-fld., droop.; gl. purplish, with scarious edges; palea broad, 5-7-nerved, keeled, purplish.

Roslin, Dryden, Carribber.

2168 **uniflora** Retz. = **nutans** Groves. *Wood Melic Grass.* Dry shady pls. 1-2 ft. Per. 5-7, shoots quadrang; sheath quite closed, produced to pt. oppos. blade; pan. lax; spikelets erect, 1-fld., awnless; upper fl. reduced to small stalked knob.

North Berwick, Tynehead, Inveresk, Arniston, Dryden, Roslin, Carribber.

511 DACTYLIS L.

2169 **glomerata** L. *Cock'sfoot Grass.* Pasts., &c. 1-4 ft. Per. 6-9, coarse tussocks; shoots flattened; ls. long, rough,

bluish-gr. with finely toothed edges; lig. promin., blunt, torn at tip; pan. short, tufted with crowded, 1-sided clusters of spikelets, 3-5-fld.; gl. lanc., keeled, ciliate on back, pointed; palea ent., pointed.

Innerwick, Haddington, Gullane, Roslin, Penicuik, Balerno, Ratho.

512 BRIZA L.

2171 **media** L. *Quaking Grass.* Dry moorland pasts. 6-12 in. Per. 6-7, tufted, slightly creep.; ls. few, flat, narr., edges rough with descend. hairs; sheath smooth; lig. short, trunc., ent.; pan. lax, spread. with long slend. branches; spikelets ovate, pendulous, 6-8-fld., gr. and purple; gl. membr., loosely imbric., inflated; palea blunt, several nerves.

Tantallon, Gifford, Gullane, Aberlady, Longniddry, Fala, King's Park, Swanston, Balerno, Ratho, Linlithgow.

513 POA L. Pan. open; sheaths split; spikelets several-fld., awnless; gl. unequal, acute, compressed, keeled; palea 3-5-veined.

2173 **annua** L. *Annual Meadow Grass.* Ubiq. 3-12 in. An. 2-10, st. compressed, limp; ls. lin., thin; lig. long, acute, whitish, clasping; pan. spread., branches in pairs becoming depressed; spikelet 5-fld., ovate, not webbed.

Everywhere.

2175 **bulbosa** L. *Bulbous Meadow Grass.* Wa. pl., &c. 6-8 in. Per. 4-5, st. round, swollen at base; ls. very narr., finely toothed; lig. long, acute; pan. close, with branches in pairs; spikelet 3-4 fld.; palea webbed at base.

Musselburgh, Leith, Slateford.

2180 **nemoralis** L. *Wood Poa.* Woods. 1-2 ft. Per. 6-7, st. smooth, slend.; ls. narr., smooth, glauc., upper horizontal; sheaths smooth, upper sheath not longer than leaf; lig. very short, trunc.; pan. slend., droop., branches 2-5 together; spikelets 1-5-fld.; gl. acute; palea sub-acute, nerves obsolete; mere traces of web.

North Berwick, Seton Castle, Gifford, Prestonhall, Inveresk, Roslin, Loanhead, Gogar, Balerno.

2181 **compressa** L. *Flat-stemmed Meadow Grass.* Dry pls. 6-8 in. Per. 6-7, st. creep., lr. part compressed, decumb.; ls. short, smooth; upper sheath as long as leaf; lig. thin, short, trunc.; pan. condensed, 1-sided, with branches 2-3 together; spikelets ov.; lr. palea 3-veined, webbed.

Gullane, Longniddry, Leith, Linlithgow.

2182 ***Chaixii** Vill. = **sudetica** Haenke. = **sylvatica** Chaix. *Meadow Grass.* Woods, &c. 2-5 ft. Per. 6-7, tufted; st. 2-edged; ls. broad, hooded at tip; sheaths, midrib edges rough; lig. blunt, short; pan. spread., spikelets 3-5-fld.; lr. palea with 5 smooth veins, not webbed.

North Berwick, Yester Park, Leith, Roslin.

2183 **pratensis** L. *Smooth Meadow Grass.* Pasts., &c. 1-2 ft. Per. 6-7, stoloniferous; st. terete, smooth; ls. narr; sheath ent.; upper sheath longer than leaf; lig. promin., short., blunt; pan. spread widely, branches 3-5 together; spikelet 4-5-fld.; palea with indistinct nerves, webbed.

Innerwick, Kidlaw, Blackford, Blackhall, Cramond, Kirkliston, Linlithgow, Carribber.

2185 ***palustris** L. = **serotina** Ehrh. *Marsh Meadow Grass.* Wet pl. 1-3 ft. Per. 6-8, st. tufted, smooth; ls. narr., rough; lig. long, acute; pan. large, lax; palea indistinctly 5-veined, hairy on keel.

Dryden, Leith, Slateford, South Queensferry.

2186 **trivialis** L. *Rough Meadow Grass.* Meads., &c. 1-2 ft. Per. 6-7, tufted, with runners; st. slend., terete, rough; sheaths ent., rough; lig. long, acute; pan. diffuse, branches 5 together; spikelets very small, 2-3-fld.; palea ribbed, smooth, webbed.

Innerwick, King's Park, Blackford, Blackhall, Cramond.

514 GLYCERIA Br. Tall semi-aquatic; sheaths ent.; spikelets several-fld., awnless.; gl. unequal, blunt, membr.; palea 5-7-ribbed.

2187 **fluitans** Br. = **Poa fluitans** Scop. *Manna, Flote Grass.* Wat. pl. 1-4 ft. Per. 7-8, st. floating or creeping,

smooth; sheaths ent., striate, keeled; ls. ribbed, acute, yell. triangle at base; lig. large, acute; pan. long, slend., roughish, lr. branches in pairs; spikelet lin., 8-20 fld.; gl. pointed; palea with ragged tip.

Innerwick, Gullane, Duddingston, Braid Burn, Canal Banks, Ratho, Balerno, South Queensferry, Linlithgow Loch, Carribber.

2190 **aquatica** Wahlb. = **Poa aquatica** L. *Water Whorl Grass.* Wet pl. 3-6 ft. Per. 4-8, ls. (1-2 ft.) thick, not ribbed; sheath smooth, ent., no keel; lig. short; pan. 6-12 in. erect, much branched, rough; spikelet lin.-oblong, blunt, 5-10-fld.; gl. blunt, rounded dorsally; palea scarious, blunt, 5-7-ribbed.

Gullane, Aberlady, Duddingston, Leith, Slateford, Linlithgow.

2191 **maritima** M. & K. = **Poa maritima** Huds. = **Sclerochloa maritima** Lindl. *Sea Manna Grass, Sea Hard Grass.* Salt marshes. 6-15 in. Per. 7-9, creep. stolon. long; ls. involute narr., short, ridgeless, soft, thick; lig. longish, blunt, decurrent; pan. erect, stiff, lr. branches in pairs; spikelets lin., 4-8-fld.; gl. rounded on back, faintly 5-nerved; lr. palea blunt, midrib reaching tip.

Innerwick, Gullane, Cramond, Dalmeny, Abercorn.

2193 **distans** Wahlb. = **Poa distans** L. = **sclerochloa** Bab. *Reflexed Manna Grass.* Sea coast, &c. 9-24 in. Per. 7-10, like 2191, but stems more slend.; lig. short, trunc.; pan. more spread., branches long, 4-5 together; spikelets 3-6-fld.; lr. palea blunt, midrib. not reaching tip.

Gullane, Prestonpans, Fisherrow, Leith, South Queensferry.

515 FESTUCA L. Pan. 1-sided; sheath split; lig. very short or obsolete, spikelets several fld.; gl. unequal; lr. pale, acute, ent.; awn usually a bristle.

2196 **rigida** Kunth. = **GLYCERIA** Sm. or **SCLEROCHLOA** Beauv. or **POA** L., **rigida**. *Hard Fescue.* Dry pls. 3-6 in. An. 6-7, tufted, stiff, smooth; pan. 1-sided, rigid; spikelet lin., acum., 6-8 fld.; palea compressed, keeled, hairs on ribs, mucronate.

Hedderwick, North Berwick, King's Park, Peffermill.

2198 **uniglumis** Soland. = **membranacea** Dr. = **fasciculata** Forsk. = **Vulpia unigl.** Reichb. *Fescue.* Seacoast. 6-12 in. An. 6-7, tufted; sheaths loose, upper far distant from pan.; lig. with round ears; pan. erect, simp., 1-sided; spikelets 4-10-fld.; outer gl. wanting; other long, acute; palea shorter, ending in awn, longer than itself.

Levenhall, Leith.

2199 *ciliata* Danth. = *Danthonii* A. & G. = *barbata* Gaud. Wa. pl. 6-9 in. An. 6-7, ls. invol.; upper sheath nearly reaching pan.; pan. long, narr., close; gl. very unequal, ciliate.

Musselburgh, Leith.

2200 **ambigua** Le Gall. Sandy pl. 4-8 in. An. 5-6, like 2199, but with smooth gl. and 1 sta.

Leith, Comiston.

2201 **Myuros** L. = **Vulpia Myuros** Gmel. *Rat's or Mouse-tail or Wall Fescue.* Dry pls. 6-18 ins. An. 5-7, tufted; st. leafy; ls. bristle-like, ridged; upper sheath reaching to pan.; lig. obsolete; pan. 1-sided, long, slend., droop., interrupted; spikelet 6-fld., awn longer than palea.

Gifford, Musselburgh, Leith, Slateford.

2202 **bromoides** L. = **sciuroides** Roth. *Fescue.* Dry pls. 4-24 in. An. 6-8, allied to 2201, upper st. leafless; ls. lin.; lig. obsolete; pan. with slend., ascend. branches; gl. unequal; palea with long awn.

Blackhall, Slateford, Cramond, South Queensferry, Linlithgow.

2204 **ovina** L. *Sheep's Fescue.* Dry pasts. 6-12 in. Per. 6-7, densely tufted; st. 4-angled, rough; ls. all bristle-like, hard, smooth, 5-7-ridged; sheath smooth, ears short, stiff; pan. erect, 1-sided; spikelets 3-5-fld., palea 5-nerved, rounded on back, tip ending in stiff awn, half as long as palea.

Innerwick, Gullane, Gifford, King's Park, Boghall, Pentlands, Cramond.

2208 ***heterophylla** Lam. *Various-leaved Fescue.* Woods, &c. 1-2 ft. Per. 6-7, slight stolons; rad. ls. long, bristle-

like, tufted; st. ls. flat; pan. long, lax; spikelets 4-10 fld.; ovary downy on top.

Yester.

2209 **rubra** L. = **genuina** Hack. *Red Fescue.* Grassy pls. 1-3 ft. Per. 6-7, stolons, long, tufted; lower ls. bristle-like; st. ls. flat; sheaths red, lr. ones hairy; pan. slightly 1-sided, reddish; spikelet 4-10-fld., awn short.

North Berwick, Garvald, King's Park, Boghall, Pentlands.

2212 **sylvatica** Vill. *Reed Fescue.* Woods. 2-3 ft. Per. 7-8, stolon short; ls. lanc., flat, with rough edges; upper lig. promin. long; pan. long, spread.; spikelets 4-5-fld., awnless; palea pointed, 3-veined, finely toothed on dorsal ribs.

Roslin, Hawthornden.

2213 **pratensis** Huds. *Meadow Fescue.* Meads. 1-2 ft. Per. 6-8, runners; ls. lin., lanc., flat, smooth; pan. long, branches in pairs, rough, sometimes spike-like; spikelets 5-10-fld.; palea 5-ribbed, mucro.

Innerwick, Kidlaw, King's Park, Cramond, Balerno.

2214 **elatior** L. *Meadow Fescue.* Meads. 1-2 ft. Per. 6-8, slight stolons; ls. flat, sharp-eared at base; lig. extremely short, smooth; pan. branches in pairs, unequal; spikelets 5-10-fld.; palea ovate-lanc., 5-nerved.

Haddington, Glencorse, Cramond, Linlithgow, Philipstoun.

2215 **arundinacea** Schreb. *Fall Fescue.* Moist pasts. 3-6 ft. Per. 7-8, reed-like; ls. flat, rigid; sheaths rough; lig. smooth; pan. diffuse, droop., branches mostly in pairs; spikelets 5-6-fld.; gl. acute, awn short.—"A large maritime form of *F. elatior.*"

Gullane, Longniddry, Cramond.

516 **BROMUS** L. Sheaths more or less ent.; pan. loose or compact, erect or droop.; spikelets many fld.; gl. unequal, lr. 1-veined, upper 3-veined; palea bifid or notched; rounded at back, with long, dorsal awn from below the tip or from the sinus; style inserted near top of ovary.

2216 **giganteus** L. = **Festuca gigantea** Vill. *Giant Brome Grass.* Woods, &c. 2-4 ft. Per. 7-8, smooth; ls. flat, with descend. bristles at basal margins; pan. open, droop., long; spikelet 3-8-fld.; gl. unequal; palea lanc.; awn from below pt., twice length of palea, finely toothed; ovary smooth.

East Linton, Roslin, Cramond.

b. **triflorus** Syme. Pan. smaller, more erect; spikelet 2-3 fld.

Roslin, Cramond.

2217 **ramosus** Huds. = **asper.** Murr. *Hairy Brome Grass.* Woods. 3-6 ft. Per. 7-8, ls. long, flat-eared, with translucent interspaces; sheath hairy, with deflexed hairs; lig. very short, toothed; pan. droop., 1-sided, downy; spikelet lin.-lanc., glauc., 6-10-fld.; palea hairy, 5-7-ribbed; awn conspicuous, shorter than palea.

Roslin, Cramond.

2218 **erectus** Huds. *Upright Brome.* Dry pl. 2-3 ft. Per. 6-8, slightly creep.; rad. ls. folded, almost awl-shaped, with hairy edges; upper ls. broader; sheaths hairy with ascend. hairs; pan. suberect, nearly simp.; spikelets compressed, lin.-lanc., 6-10-fld.; palea lanc., 5-7-ribbed, with adpressed hairs; awn half length of palea; anther yellow.

Dunbar, King's Park.

2220 **madritensis** L. = **diandrus** Curt. *Barren Brome.* Dry wa. pl. 6-12 in. An. 6-7, st. erect, smooth; pedicel rough; ls. narr., flat, hairy; upper part of plant rough, lower smooth; pan. erect, compressed, purplish; spikelet lin.-lanc.; palea ribbed; awn longer than palea; sta. sometimes 2.

Musselburgh, Portobello, Leith, Slateford.

2221 **tectorum* L. *Barren Brome.* Wa. pl. 9-15 in. An. 6-7, allied to 2220, but st. downy; pan. droop., 1-sided; spikelets smaller, awn short.

Levenhall, Eskmouth, Portobello, Leith, Murrayfield, Slateford, Kirkliston.

2222 **maximus** Desf. = **rigens** L. = **villosus** Forsk. *Barren Brome.* Wa. pl. 9-24 in. An. 6-7, plant downy; pan. erect, lax; spikelet long, lanc., downy, 6-8-fld.; palea long, broad, with very long awns.

Musselburgh, Portobello, Leith, Slateford, Newbridge.

2223 **sterilis** L. *Barren Brome Grass.* Roadsides. 1-2 ft. An. 6-7, ls. and sheaths downy; pan. very lax, droop., long branched; spikelets lin.-lanc., 6-8-fld.; palea rough on back, 7-nerved, tough, red-brown; awn straight, 2 in. long.

Innerwick, Seton Mains Halt, Davidson's Mains, Juniper Green, Turnhouse, Whelpside, Balerno.

2224 ***secalinus** L. = **Serrafalcus secalinus** Bab. *Rye Brome Grass.* Roadsides. 2-3 ft. An. 6-7, st. erect, stiff; pan. slightly branched, 3-5 together, loose, spread.; rachis rough, flexuose; spikelet ov., compressed smooth, 5-10-fld.; palea loose, rough, notched; awn short.

Musselburgh, Roslin, Leith, Slateford, Kinneill.

2225 **racemosus** L. = **Serrafalcus racemosus** Parl. *Smooth Brome Grass.* Pasts., &c. 1-2 ft. Bi. 6-7, plant stiff, nearly smooth; ls. stiff, ciliated; sheaths rather hairy; pan. long, erect, usually simp.; spikelet ov.-obl., 6-10-fld., smooth, glossy; paleae unequal, imbric.; awn straight, equal to palea in length.

Musselburgh, Roslin, Craigmillar.

2226 **commutatus** Schrad. = **pratensis** Ehrh. = **Serrafalcus commutatus.** Bab. *Meadow Brome.* Meads. 1-3 ft. Bi. 6-7, stouter plant than 2225; ls. and sheaths more hairy; pan. loose, slightly droop.; spikelets obl.-lanc., 6-10-fld.; paleae imbric., bluntly ang.; awn straight, as long as fl.

Aberlady, Eskmouth, Newbattle, Duddingston, Leith, Granton, Slateford, Juniper Green.

c. **multiflorus** Parn. Var. with more numerous fls.

Murrayfield, Davidson's Mains.

2228 **hordeaceus** L. = **mollis** L. = **Serrafalcus mollis** Parl. *Soft Brome.* Fields, &c. 1-3 ft. An. 5-8, plant very downy, glauc.; ls. soft, with rough edges, very thin, dry; pan. erect, close, slightly branched; spikelet ov., 6-10-fld.; paleae closely imbric., hairy; awn from between 2 teeth, as long as palea.

Seton Mains, Blackhall, Davidson's Mains, Slateford, Turnhouse.

2229 **molliformis** Lloyd. = **Lloydianus** G. & G. Like 2228 but prostrate, with divaricate awn.

Musselburgh, Portobello, Leith.

2231 **arvensis* L. = **Serrafalcus** *arvensis* Godr. *Field Brome.* Wa. pl. 1-3 ft. An. 6-8, st. smooth; ls. hairy; pan. slend., spread., droop., lr. part with long, roughish, hair-like branches, 5-7 together; spikelet lanc., heavy; paleae equal in length, broad, obovate, turgid; lr. 5-7-ribbed; awn fine, smooth, as long as palea.

Innerwick, Leith, Murrayfield, Slateford.

517 BRACHYPODIUM Beauv. Pan. simp.; spikelets several-fld. subsessile, broadside to rachis; gl. unequal.

2232 **sylvaticum** R. & S. = **gracile** Beauv. *Slender False Brome.* Woods. 1-3 ft. Per. 6-7, rt. fibrous, slightly stoloniferous; ls. lanc., flat, dry, limp, hairy; sheaths round, hairy; lig. membr., short, blunt, torn; pan. rather droop., spikelets elongated subsess., with broadside to rachis, 8-10-fld.; gl. ptd.; palea straw-coloured, ribbed, hairy, boat-shaped, tapering into hairy awn longer than itself.

North Berwick, King's Park, Roslin, Auchindinny, Juniper Green, Carribber.

518 LOLIUM L. Spike simp.; spikelets sol., flat, edgewise in notches of rachis, several-fld.

2234 **perenne** L. *Rye Grass.* Pasts., &c. 1-2 ft. Per. 6-8, with leafy barren shoots; ls. folded, keeled, eared, glossy dk.-gr., rough above, shiny beneath; sheaths red; lig. short; spikelets 3-9-fld.; palea distinctly 5-ribbed, smooth, obl.-lanc., usually awnless.

Innerwick, Haddington, Roslin, Balerno, Ratho.

2235 **multiflorum* Lam. = *italicum* Braun. *Italian Rye Grass.* Wa. pl. 1-2 ft. An. 6-7, ls. rolled, veins less distinct,

smooth beneath; lig. short, abrupt; spikelet 5-12-fld.; lr. palea with long awn from between the 2 teeth.

Innerwick, Yester, Ormiston, Longniddry, Musselburgh, Leith, Turnhouse, Slateford, Balerno, Ratho.

2237 *temulentum* L. *Darnel, Tare.* Wa. pl. 1-2 ft. An. 6-7, no barren shoots, foliage rougher, lig. short; spikelets 6-fld., shorter and broader than in 2234; lr. gl. is often alone and conspicuous like a bract; palea inflated, smooth, with slend. nearly termin. awn.

Innerwick, Haddington, Tranent, Levenhall, Musselburgh, Portobello, Leith, Slateford.

(*b*) *arvense* With. Spikelets 4-5-fld., without awns.

Leith, Slateford.

519 AGROPYRON J. Gaertn. Ls. thin, dry, harsh, with curled, pointed ears; lig. short or obsolete; spike simp., with stout, notched rachis; spikelet sess., broadside to rachis against the notches, several-fld.; gl. equal.

2238 **caninum** Beauv. = **Triticum caninum** Huds. *Bearded Couch or Wheat Grass.* Hedges, &c. 1-3 ft. Per. 6-8, rt. fibrous, tufted; ls. flat, rough on both sides; spike close; spikelets 2-5-fld.; gl. thin, 3-5 ribbed, acute; palea 5-nerved, downy tip; awn long, rough.

Innerwick, East Linton, Longniddry, Inveresk, Roslin, Cramond, Carribber.

2240 **repens**. Beauv. = **obtusum** syme = **Triticum repens** L. *Couch Grass Twitch.* Arable land, roadsides. 1-3 ft. Per. 6-8, rt. extensively creeping; st. sol., hollow; ls. thin, dry, rough-edged, hairy above, ears long, pointed, often crossing in front; lig. short, fringed; spike close; spikelet 5-7-fld.; gl. narr., stiff, 5-7-ribbed; palea tough, ribbed, smooth, with rounded back; awn variable, usually a mere point.

Innerwick, Haddington, Arthur's Seat, Murrayfield, Turnhouse.

2242 **pungens** R. & S. = **Triticum pungens** Pers. *Sharp Couch Grass.* Coastal sand. 1-2 ft. Per. 6-8, creep.; ls. very rough, rolled, sharply pointed; spike close, smooth; spikelet 5-12-fld.; gl. acute 7-9, thick ribs.

Haddington, North Berwick.

2243 **junceum** Beauv. = **Triticum junceum** L. *Jointed Couch Grass.* Coastal sand. 9-18 in. Per. 6-8, rt. cr.; ls. rolled, hard, leathery, glauc., smooth, sharply pointed; spike rather loose; rachis brittle; spikelet large, shining, 4-10-fld.; gl. ribbed; palea blunt, awnless.

Longniddry, Port Seton, Fisherrow, Granton, Dalmeny.

× **repens** Hack. = **acutum** anct. angl. 9-24 in. Very variable.

Aberlady, Longniddry, Granton.

520 LEPTURUS Br.

2244 **filiformis** Trin. = **incurvatus** Trin. *Hard Grass.* Sea coast. 4-9 in. An. 7-9, st. decumb., much branched at base, smooth; ls. flat, short, fine, close up to fls.; fl.-st. curved; spike slend., curved; spikelet 1-fld., awnless, inserted at notches of rachis; gl. united at base, hard-ribbed; palea very thin.

Aberlady, Gullane, Longniddry.

521 NARDUS L.

2246 **stricta** L. *Matweed.* Hill pasts., moors. 2-8 in. Per. 6-8, erect, tufted, smooth; ls. grooved, bristle-like, rigid; sheath smooth; lig. small, thick, blunt; spike slend., one-sided; spikelet sess., 1-fld., purp.; gl. rudimentary; outer palea tough, narr., lanc., tapering into stiff finely toothed termin. awn shorter than itself; inner palea awnless, minutely toothed.

Innerwick, Hope's Water, Lammermoors, Kidlaw Burn, Moorfoots, Pentlands, Balerno.

522 HORDEUM L. Root fib.; spike compressed, tufted; spikelets in threes at each notch of rachis, 1-fld.; gls. of lateral fls. rough, bristle-like; of middle one, ciliate.

2249 **murinum** L. *Wall or Mouse Barley, Way-Bennet.* Roadsides. 6-18 in. An. 6-7, coarse, tufted, decumb. at

base; ls. narrow, hairy, rough; sheath hispid, inflated; lig. very short; spike cylind., dense; gl. all awn-like, outer bristle-like; palea lin.-lanc.; awns very long, finely toothed.

Innerwick, North Berwick, Longniddry, King's Park, Slateford, South Queensferry.

2250 **marinum** Huds. = **maritimum** With. *Sea Barley, Squirrel-tail.* Sea coast. Wa. pl. 4-12 in. An. 6-7, plant smaller than 2249; ls. glauc.; sheaths hairy; spike short, ovoid; awn shorter, more spreading.

Tranent, Musselburgh, Portobello, Leith, Slateford, Bo'ness.

523 ELYMUS L. Spike simp., spikelets 2 or 3 together, 2-7-fld. sess. in notches of rachis.

2251 **arenarius** L. *Sea Lyme Grass.* Sandy shores. 2-6 ft. Per. 7-8, glauc., stoloniferous; st. stout, smooth; ls. rolled, rigid, spiny; spike dense, erect, stout, whitish; awnless; spikelets in pairs, 3-4-fld.; gl. lanc., very pointed.

Belhaven, North Berwick, Aberlady, Longniddry, Leith, Dalmeny.

II. GYMNOSPERMS.

92. CONIFERAE = PINACEAE.

Pine Family—Trees with stiff or scale-like leaves, flowers imperfect, generally in cones, without any perianth; no closed ovary.

Key to Genera.

Fr. 1-seeded in pink fleshy cup (aril); ls. single, lin., flat, glossy above, in 2 rows on twig—"combed out"	*Taxus*	525
Fr. 2-3 seeded in fleshy, berry-like cone, glauc., black when ripe; ls. awl-shaped, whorled . . .	*Juniperus*	524
Fr. many-seeded in dry woody cone, with persist. scales, 2 winged seeds on each; ls. needle-like, grooved above, in bundles	*Pinus*	526

524 JUNIPERUS L.

2252 **communis** L. *Juniper.* Dry hills. 2-5+ft. Per. 5-6, evergreen, bark red-brown, flaking; ls. in whorls of 3, lin., spread., with prickly pt. glauc. above; fl. dioecious, in minute axill. catkins, male-fl. of 3-6 anthers on lower edge of shield-shaped scale, fem.-fl. of several imbric. scales, the upper 3-6 growing fleshy enclose the ovules, and become the small, glob., blue-black, berry-like cone, when ripe.

Aikengall, Lammermoors, Pentlands, Linlithgowshire.

525 TAXUS L.

2254 **baccata** L. *Yew.* Woods. 10-50 ft. Tree. 3-4; evergreen; bark fibrous, brown; ls. lin. acute, leathery, glossy above, inserted all round twig, but flattened into 2 oppos. rows; fl. dioecious, axill. sess, male-fl. 5-8 anthers in shield-like scale, fem.-fl. sol., erect, green, with scales beneath, which develop into a bright red fleshy cup (aril) around the seed.

Dunbar, Gosford, Ormiston, Dalkeith, Glencorse, Saughton, Almondell, Abercorn, Philipstoun, Linlithgow.

526 PINUS L.

2255 **sylvestris** L. *Scotch Pine.* Woods, heaths. 20-100 ft. Tree. 5-6, evergreen; bark red-brown, scaly; ls. in pairs (2-3 in.), glauc., grooved above; fl. monoecious, male-fl. in whorls at end of last year's shoots, fem.-fls. 1-3 together at end of new shoot, become "cones" (in 18 mo.), with hard woody scales, thickened on back, with short, thick pt. and 2 long-winged seeds on each.

Dunbar, Yester, Ormiston, Dalkeith, Hawthornden, Balerno, Abercorn, Linlithgow.

CRYPTOGAMS.

I. VASCULAR CRYPTOGAMS = PTERIDOPHYTES.

93. FILICES.

Fern Family — Perennial herbs with rhizomes, fronds unfolding like a scroll, and no flowers; but fruiting capsules (sporangia) arranged either in clusters (sori) on the under surface of the frond, with or without a membranous covering (indusium); or in spikes or panicles at the top of the frond.

Key to Genera.

I. *Polypodiaceae:*

(1) *Spore-clusters in reflexed margin of frond:*
- (a) *Fronds unlike, clusters round, uniting at length* . . . . . *Cryptogramme* 531
- (b) *Fronds alike, clusters linear, continuous* . . . . . *Pteris* 530
- (c) *Fronds unlike, clusters continuous* . *Blechnum* 532

(2) *Spore-clusters dorsal, linear:*
- (a) *Clusters double, parallel, opening towards each other* . . . . *Phyllitis* 536
- (b) *Clusters single, long, straight, opening towards midrib, margin of indusium entire* . . . . . *Asplenium* 533
- (c) *Clusters single, oblong, curved, opening towards midrib, margin of indusium fringed* . . . . . *Athyrium* 534

(3) *Spore clusters dorsal, roundish:*
- (a) *Indusium round, attached by centre* . *Polystichum* 539
- (b) *Indusium kidney-shaped, attached by sides* . . . . . *Lastrea* 540
- (c) *Indusium hooded with long fringed end, attached by base* . . . *Cystopteris* 538

(4) *Spore-clusters without indusium:*
- (a) *Clusters round; stem jointed with root-stock* . . . . . *Polypodium* 541
- (b) *Clusters round; stem not jointed with root-stock* . . . . . *Phegopteris* 542
- (c) *Clusters linear, back of frond covered with chaffy scales* . . . . *Ceterach* 535

II. *Ophioglossaceae:*

(1) *Fertile spikes panicled, attached to pinnate frond* . . . . . *Botrychium* 546

(2) *Fertile spikes simple, attached to entire frond* . . . . . *Ophioglossum* 545

III. *Marsiliaceae:*

(1) *Spore-clusters sess. glob.; ls. bristle-like, aquatic* . . . . . *Pilularia* 551

530 PTERIS L.

2261 **aquilina** L. *Bracken.* Heathy pl. 2-6 ft. Per. 7-8, creep.; frond 3-partite, branches 2-pinn., lr.-pinnules gen. pinnfid.; segm. obl., blunt, veins free; spore-clusters lin., continuous, on marginal vein.

Dunbar, Longniddry, Fala, Dalkeith, Straiton, Habbie's Howe, Dalmeny.

531 CRYPTOGRAMME Br. = **ALLOSURUS** Bernh.

2262 **crispa** Br. *Parsley Fern, Rock-Brake.* Stone walls in hilly pl. 3-8 in. Per. 7-8, barren fronds, 2-3 pinn., lft. wedge-shaped, often 2-fid.; fert. pinnules spindle-shaped, veins forked, each branch ending in spore-cluster, hidden by reflexed margin.

Habbie's Howe, Heriot, Carnethy Hill.

532 BLECHNUM L. = **LOMARIA** Desf.

2263 **Spicant** With. = **boreale** Sw. *Hard Fern.* Heathy pl. 4-12 in. Per. 6-7, barren fronds pinnfid., with broadly lin., blunt pinnae, fert. frond pinn., with lin. acute pinnae, erect in centre of tuft; spore-clusters on either side of midrib, quite cover back of segm.

Woodhall Dean, Arniston, Roslin, Auchindinny, Pentlands.

533 ASPLENIUM L. Fronds 1-3-pinn. or forked, stiff though slend., often small; spore-clusters obl. or lin. on under-surface, diverg. from near centre of segm., covered, when young, by indusium, which opens outwards, attached lengthwise.

2266 **Adiantum=nigrum** L. *Black Spleenwort.* Rocks, walls. 4-12 in. Per. 6-10, frond ov.-triang., 2-3-pinn.; segm. wedge-shaped, sharply toothed, many-veined; spore-clusters long, central.

Arniston, Roslin, Allermuir.

2269 **Trichomanes** L. *Black Maidenhair Spleenwort.* Rocks, walls. 6-12 in. Per. 5-10, frond lin., pinn.; segm., roundish-obl., st. black below, glossy red-brown above.

North Berwick, Arniston, King's Park, Ratho, South Queensferry.

2270 **Ruta-muraria** L. *Wall-rue, Tentwort.* Rocks, walls. 1-4 in. Per. 6-10, frond, ovate, 2-pinn., below; segm. wedge-shaped, lobed at tip, no mid-vein; jagged indusium disappears.

Catcraig, Aberlady, Longniddry, Ormiston, King's Park, Craigmillar, Ratho, Carlowrie, Linlithgow, Blackness.

2272 **septentrionale.** Hoffm. *Forked Spleenwort.* Dry rock-clefts. 1-4 in. Per. 6-10, frond lin., leathery, 2-3-cleft; segm. lin. toothed — very rare plant, like miniature Stag's-horn fern.

Arthur's Seat.

534 ATHYRIUM Roth. = **ASPLENIUM** Bernh. = **ASPIDIUM** = **POLYPODIUM.**

2273 **Filix-foemina** Roth. *Lady Fern.* Woods, &c. 1-4 ft. Per. 7-8, rhiz. very large, above ground; stalk rather scaly; frond. obl.-lanc., flaccid, 2-pinn.; segm. lin.-obl., deeply toothed, lobed or pinnfid., teeth sharp, close-set; spore-clusters distinct, obl., curving to kidney-shape, in 2 rows, diverg. from mid.-vein; indusium fringed, attached along one side—very variable.

Dunbar, Arniston, Roslin, Auchindinny, Carriden.

535 CETERACH Willd. = **ASPLENIUM** Hook. = **SCOLOPENDRIUM** Sm.

2276 **officinale** Willd. = **Asplenium Ceterach** L. *Rustyback Fern, Scale Fern.* Rocks, walls. 4-6 in. Per. 4-10, fronds pinnfid. or pinn., tufted; segm. broad, obl., attached by broad base, green, smooth on upper side, thickly cov. with brown, membr. scales beneath; spore-clusters lin., diverg. from near centre of segm., without distinct indusium, but hidden by the chaffy scales.

Cockburnspath.

536 PHYLLITIS Hill = **SCOLOPENDRIUM** Adans.

2277 **Scolopendrium** Newm. = **Scolopendrium vulgare** Sym. Sm. *Hart's Tongue.* Shady pl. 4-24 in. Per. 7-8, frond *entire*, narr.-oblong, cord. at base, leathery, glossy above, midrib stout; twin spore-clusters in slant., parallel lines on each side of midrib.

Dunglass, Tantallon, Arniston, Roslin, South Esk.

538 CYSTOPTERIS Bernh.

2280 **fragilis** Bernh. *Brittle Bladder Fern.* Rocky pl., walls. 4-8 in. Per. 7-8, fronds tufted, delicate, ov.-lanc., 2-pinn.; segm. obl., deeply pinnfid., sharply toothed, veining distinct; spore-clusters roundish, cov. by loose white membr. indusium ("bladder"), attached to mid. of vein by broad hooded base, at one side.

Dunglass, Traprain Law, Arniston, Loganlee, Pentlands, Currie, Ratho, Linlithgow.

539 POLYSTICHUM Roth. = **ASPIDIUM** Sw. = **DRYOPTERIS** S. & T.

2284 **aculeatum** Roth. *Prickly Shield Fern.* Woods, &c. 1-2 ft. Per. 7-8, st. chaffy; frond stiff, dk.-gr., lanc., 2-3 pinn.; segm. have eared base and spiny pt.; spore-clusters round, attached by centre, form line on each side of midrib.

Roslin, Carriden.

b. **lobatum** Presl. Fronds lin.-lanc., stiffer; segm. less divided.

Arniston, Roslin, Auchindinny.

540 LASTREA Presl. = **DRYOPTERIS** Adans. = **NEPHRODIUM** Rich. = **ASPIDIUM** Sw. Frond 1-3 pinn., stiff, usually erect; spore-clusters kidney-shaped, attached at notched side.

2287 **montana** T. Moore. = **Oreopteris** Presl. = **Aspidium. Oreopteris** = **Polypodium Oreopteris** or **montanum** = **Polystichum montanum.** *Sweet Mountain Fern, Heath Shield Fern.* Heaths, &c. 1-2 ft. Per. 7-8, frond tufted, leafy almost to base, markedly decreasing from middle, 2-pinn.; segm. obl., flat, many small glossy, yell. glands on underside, giving sweet scent when bruised; spore-clusters near margin of lobe.

Arniston, Hawthornden, Pentlands, Loganlee.

2288 **Filix-mas** (L.) Sch. *Male Fern.* Woods, &c. 1-3 ft. Per. 7-8, frond ov.-lanc., rather pale gr., slightly narrowed downward, 2-pinn.; segm. lin.-lanc., all, except lowest, united to each other at base; pinnules obl., blunt, toothed; spore-clusters, near midrib, kidney-shaped, lead-coloured.

Arniston, Dalhousie, Auchindinny, Carriden.

2292 **spinulosa** Presl. Kuntze. = **austriaca** Woyn. = **Lophodium spinosum.** *Narrow Prickly-toothed or Crested Fern.* Moist pl. 1-3 ft. Per. 7-9, st.-scales broad, translucent; frond pale gr., obl.-lanc., 2-pinn.; segm. ov.-obl., acute, toothed, spiny; spore-clusters on smaller veins, halfway between midrib and edge.

Humbie, Threipmuir.

2293 **aristata** R. & B. = **dilatata** Presl. *Broad, Prickly-toothed or Crested Fern.* Woods, &c. 1-4 ft. Per. 7-9, st.-scales lanc.-acum., with dk.-brown centre; frond dk.-gr., arched, droop., convex, ov.-triang.; 2-pinn. segm. obl., toothed, spiny, lr. largest; spore-clusters not in precise rows, but crosswise on large lobes, lengthwise on less-divided parts; indusium fringed with glands.

Arniston, Dalhousie, Roslin, Carriden.

541 POLYPODIUM L.

2295 **vulgare** L. *Common Polypody.* Hedgebanks, walls, &c. 4-12 in. Per. 6-9, frond obl.-lanc., deeply pinnfid., firm, leathery; segm. lin.-obl. (sometimes slightly toothed); spore-clusters orange, in rows on under side of upper parts.

Arniston, Dalhousie, Roslin, Carriden.

542 PHEGOPTERIS Presl.

2296 **Dryopteris** Fee. = **Polypodium Dryopteris** L. = **Dryopteris Linneana** Chr. *Oak Fern, Three-branched Polypody.* Dry shady pl. 4-12 in. Per. 7-8, st. slend., brittle, dk.-purp.; frond. broadly triang., 3-nate., each branch pinn. at base, pinnfid. at upper part; lr. segm. stalked, thin, bright green, smooth; spore-clusters round, pale brown, marginal.

Aikengall Dean, Arniston, Auchindinny.

2297 **Polypodioides** Fee. = **Polypodium Phegopteris** L. = **Dryopteris Phegopteris** Chr. *Beech Fern, Mountain Polypody.* Shady pl. 4-10 in. Per. 6-8, delicate; frond triang., taper. to long pt., 2-pinn., *lowest pair of segm. turned downwards and forwards,* the rest upwards, pale green, hairy; spore-clusters small, round, brownish, nearly marginal.

Traprain Law, Auchindinny.

545 OPHIOGLOSSUM L.

2301 **vulgatum** L. *Adder's Tongue.* Moist past. 2-8 in. Per. 6-8, st. sol. with 1 barren leaflike frond, *entire,* ov., blunt; fert. frond club-shaped ("tongue"), sometimes long, with 15-25 spore-clusters, embedded on each side.

Dunglass, Arniston, Dalhousie, Prestonhall, Pentlands, Dalmeny, Carlowrie, Hopetoun, Linlithgow, Muiravonside.

546 BOTRYCHIUM Sw.

2303 **Lunaria** Sw. *Moonwort.* Heathy past. 1-6 in. Per. 6-8, st. sol., with 1 barren frond., *pinn.*; segm. 5-12, thick, fan-shaped, cren.; fert. frond. a panicle of clusters, turned to one side.

Hedderwick Links, Gullane, Prestonhall, Borthwick, Newbattle, Arniston, Pentlands.

94. EQUISETACEAE.

Horsetails—Leafless plants with furrowed, hollow stems and toothed sheaths; spores of 1 kind are borne on a terminal cone.

547 EQUISETUM L. Stem, either simp. or branched, hollow, jointed, with striae or furrows, sheath at each joint, edged with teeth; branches (like stem) in whorls with fewer striae; fr.-stem has ovoid. term. spike with several whorls of shield-shaped brown or black scales, covering spore-cases filled with minute spores.

2306 **maximum** Lam. = **Telmateia** Ehrh. *Great Horsetail.* Wet pl. 3-6 ft. Per. 4-6, barren st. 20 to 40 striae, pale, smooth branches erect, ang., rough, teeth of sheath 2-ribbed; fr.-st. stout, simp. (1 ft.), with many large, brown, deeply toothed sheaths, spike 2 in.—wither. before barren st. appears.

Saltoun, Arniston, Roslin, Auchindinny, Dalhousie, Juniper Green, Balerno, South Queensferry.

2307 **arvense** L. *Corn Horsetail.* Fields, &c. 6-36 in. Per. 4-5, gen. outline narr. upwards; barren st. 10-18 striae, slightly rough; branches 10-12 in whorl, slend. ang., spread., teeth of sheath long, acute, 1-ribbed at tip; fr.-st. simp., short, with 4-5 sheaths which are loose and membr.; wither. before barren st. appears.

North Berwick, Haddington, Gullane, Auchindinny, Ratho, Mid-Calder, Dalmeny, Kirkliston, Hopetoun.

2308 **pratense** Ehrh. = **umbrosum** Hook. Willd. *Blunt-topped Horsetail.* Damp hill-past. 9-24 in. Per. 4-5, gen. outline very blunt at top; barren st 10-20 striae, very rough, branches spread., ang.; teeth of sheath blunt, 1-ribbed but not to tip; fr.-st. slend., simp. at first, but with whorls of branches after spike is developed; many crowded, deeply toothed, sheaths.

Roslin, Penicuik, Mid-Calder, Carribber.

2309 **sylvaticum** L. *Wood Horsetail.* Peaty woods, &c. 6-18 in. Per. 4-5, *dainty branched* species; st. 12 furrows, with many whorls of *compound* branches, light gr. *solid*, sheath with 3-5 deep, blunt lobes; fr.-st. at first nearly simple, later branched like barren st., spike long.

Arniston, Roslin, Balerno, Hopetoun, Carriden.

2310 **palustre** L. *Marsh Horsetail.* Wet pl. 1-2 ft. Per. 6-7, st. 4-10 deep furrows, branched throughout, branches *short* hollow, few in whorl; sheath loose, pale, teeth wedge-shaped, acute with membr. tips; mostly fruiting, spike small, blunt.

Roslin, Duddingston, Balerno, Hopetoun, Carriden.

2311 **limosum** L. = **heleocharis** Ehrh. *Smooth Water Horsetail.* Ditches, &c. 1-3 ft. Per. 6-7, st. 10-30 striae, *few very short, hollow branches, or* 0; sheath short, ad-pressed, teeth short, rigid, acute; mostly fruiting, spike small, blunt.

Roslin, Duddingston, Blackhall, Balerno, Ratho, Dalmahoy, Hopetoun, Carriden.

b. **fluviatile** L. Barren st. with whip-like end, branches long, slender.

Arniston, Roslin, Auchindinny.

2312 **hyemale.** *Rough Horsetail, Dutch Rush.* Marshy pl. 1-3 ft. Bi. 7-8, st. simp. 14-20 furrows, hollow, glauc., very rough, no branches (or 1-2 rad.); sheath close, whitish with black base and tip, teeth black with decid. tips; mostly fruiting, spike with conical pt. on rounded top.

Roslin, Hawthornden, Auchencorth, Ratho, Hopetoun, Carriden.

2315 **variegatum** Schl. Web. *Variegated Horsetail.* Sandy pl. 6-12 in. Per. 7-8, st. slend., decumb., 8-10 striae, very rough, 4-10 furrows, simp. or with rad. branches; sheath green below, black above with blunt, bristle-ptd. teeth; mostly fruiting, spike with conical pt. on top.

North Berwick, Gullane, Grangemouth.

95. LYCOPODIACEAE.

Club-mosses—St. long; ls. spirally arranged, spores of 1 kind in capsules.

548 LYCOPODIUM L. Leafy plant with simp. imbric. ls.; spore-capsules, sess. in axils of upper st.-ls., or in bracts of term. spike; filled with powdery granules.

2317 **Selago L.** *Fir Clubmoss.* Heathy hills. 2-6 in. Per. 6-8, st. erect forked, flat-topped; ls. dk.-gr., imbric., spread. in 8 rows, lin.-lanc., acute; spore-capsule large, axill. in upper ls.

Tynehead, Swanston, Balerno, Pentlands.

2320 **clavatum** L. *Common Clubmoss.* Heaths. 1-3 ft. Per. 6-8, st. long, creep. branches short, ascend.; ls. scattered, incurved lin., hair ptd.; fr.-spikes stalked 2-3 together, pale yell.; capsules in axils of bracts.

Swanston, Pentlands, &c.

2321 **alpinum** L. *Alpine Clubmoss.* High hills. 3-15 in. Per. 6-8, st. creep., long, branches erect, clustered, forked, flat-topped; ls. in 4 rows, obl. keeled, acute, adpressed; spike sol. sess., short, yell.-green.

Black Hill, Pentlands.

96. SELAGINELLACEAE.

Selaginella—Leaves in 2 sizes in 4 rows; spores of 2 kinds in 2-valved capsules.

549 SELAGINELLA Spring.

2323 **selaginoides** Gray. Link. = **Lycopodium selaginoides.** Moist turfy pl. 1-6 in. Per. 6-8, st. creep., slend., much branched; ls. lanc., spread.; spikes term. on short, erect, simp. branches with longer ls.; spores of spike-cases, minute, those of lower cases, larger grains.

Gullane, Aberlady, Pentlands.

97. MARSILIACEAE.

Pillwort—Aquatic, fronds bristle-like, erect; spore-clusters sess. globose.

551 PILULARIA.

2327 **globulifera** L. *Pillwort, Peppergrass.* Peaty pools. 2-4 in. Per. 5-7, st. creep., rooting at joints; barren fronds thread-like, erect; spore-clusters in almost sess. glob. 4-celled, hairy involucre, spores of 2 kinds—lower, few, larger; upper, many, minute, powdery.

Duddingston, Pentland Marshes, Currie, Broxburn.

INTRODUCTORY NOTE TO ECOLOGICAL LISTS.

Plant ecology is the study of the relation of plants to their *environment.*

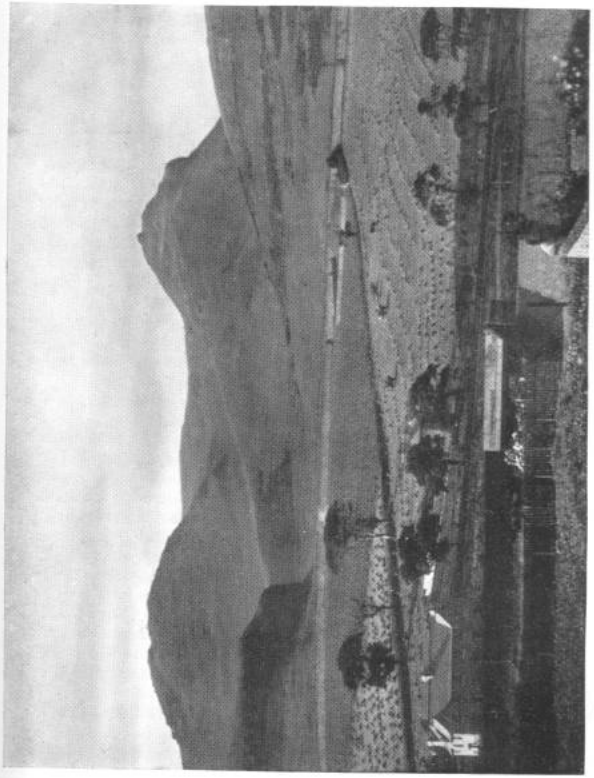
The constant interaction between plants and their environment has given rise to many wonderful adaptations. Typical land-plants absorb water from the soil by means of their roots, and obtain carbon from the air chiefly by means of their leaves. Such plants flourish wherever conditions as to moisture, air, light, and temperature are favourable, and there, competition is keen. Many die out; but some, though not so well equipped generally, are able to exist in special localities owing to their having acquired some special adaptation—*e.g.*, some may flourish in a peat-bog, others in a salt-marsh, or even in the sea.

Thus we have various *Plant formations* or communities of plants occurring in various *habitats* to which they are specially adapted—hill, loch, moor, wood, or seashore.

The chief *ecological factors* or characters of the habitat which influence the vegetation are climate, soil, and a complex series of factors grouped as biotic — *climatic*, *edaphic*, *biotic.*

The following lists have been given in order to point the way to that most fascinating branch of Field-Botany—Ecology.

The species are grouped and numbered according to the Natural Orders to which they belong.



T. Cuthbert Day.

ARTHUR'S SEAT.

ARTHUR'S SEAT AND CRAGS.

6 Erophila verna.
Sisymbrium officinale.
8 Helianthemum Chamaecistus.
10 Polygala vulgaris.
12 Dianthus deltoides.
Lychnis Viscaria.
Cerastium viscosum.
,, vulgatum.
,, arvense.
Arenaria verna.
,, serpyllifolia.
20 Geranium sanguineum.
,, pyrenaicum.
,, molle.
,, Robertianum.
Erodium cicutarium.
25 Ulex europaeus.
Ononis repens.
Medicago lupulina.
Trifolium striatum.
,, repens.
Anthyllis Vulneraria.
Lotus corniculatus.
Vicia lathyroides.
Lathyrus pratensis.
26 Prunus spinosa.
Spiraea Filipendula.
Potentilla verna.
,, erecta.
Poterium Sanguisorba.
Pyrus Aria.
,, rupicola.
27 Saxifraga granulata.
28 Sedum acre.
34 Conium maculatum.
Carum Petroselinum.
Aegopodium Podagraria.
Pimpinella Saxifraga.
Chaerophyllum temulum.
Anthriscus sylvestris.
Heracleum Sphondylium.
Daucus Carota.
Caucalis Anthriscus.
,, nodosa.
35 Hedera Helix.
37 Sambucus nigra.
38 Galium verum.
,, saxatile.
41 Bellis perennis.
Achillea Millefolium.
Chrysanthemum Leucanthemum.
Tanacetum vulgare.
Senecio vulgaris.
,, sylvaticus.
,, viscosus.
,, Jacobaea.
Arctium majus.
Cnicus lanceolatus.
,, arvensis.
Centaurea nigra.
Lapsana communis.
Crepis capillaris.
Hieracium Pilosella.
,, murorum.
Taraxacum officinale.
Sonchus oleraceus.
42 Campanula rotundifolia.
44 Calluna vulgaris.
52 Myosotis collina.
Echium vulgare.
55 Digitalis purpurea.
Veronica hederaefolia.
,, serpyllifolia.
,, officinalis.
,, Chamaedrys.
Euphrasia officinalis.
59 Thymus Serpyllum.
Nepeta grandiflora.
Teucrium Scorodonia.
60 Plantago major.
,, lanceolata.
64 Rumex crispus.

Rumex Acetosella.
71 Urtica dioica.
90 Carex leporina.
,, Goodenowii.
,, flacca.
,, panicea.
,, flava.
,, hirta.
91 Anthoxanthum odoratum.
Alopecurus pratensis.
Phleum pratense.
,, nodosum.
Agrostis alba.
,, tenuis.
Aira caryophyllea.
,, praecox.
Deschampsia caespitosa.
,, flexuosa.
Holcus lanatus.
Trisetum flavescens.
Avena pratensis.
Arrhenatherum elatius.
Sieglingia decumbens.
Cynosurus cristatus.
Koeleria gracilis.
,, cristata.
Molinia coerulea.
Dactylis glomerata.
Briza media.
Poa annua.
,, pratensis.
Glyceria fluitans.
Festuca rigida.
,, ovina.
,, elatior.
Bromus ramosus.
,, sterilis.
,, hordeaceus.
Lolium perenne.
Nardus stricta.
Hordeum murinum.
93 Pteris aquilina.
Asplenium Ruta-muraria.
,, septentrionale.
Athyrium Filix-foemina.
Lastrea Filix-mas.

DUDDINGSTON LOCH.

1 Ranunculus sceleratus.
,, Flammula.
,, Lingua.
,, repens.
,, bulbosus.
,, Ficaria.
Caltha palustris.
6 Radicula Nasturtium-aquaticum.
Cardamine pratensis.
Lepidium Draba.
12 Stellaria palustris.
30 Hippuris vulgaris.
Myriophyllum spicatum.
Callitriche palustris.
,, autumnalis.
50 Menyanthes trifoliata.
52 Myosotis scorpioides.
55 Veronica scutellata.
Veronica Anagallis-aquatica.
Veronica Beccabunga.
64 Polygonum amphibium.
76 Ceratophyllum demersum.
,, submersum.
79 Iris Pseudacorus.
83 Juncus articulatus.
,, sylvaticus.
84 Typha latifolia.
,, angustifolia.
Sparganium simplex.
86 Lemna trisulca.
,, minor.
,, gibba.
87 Alisma Plantago-aquatica.
,, ranunculoides.
Butomus umbellatus.
88 Potamogeton natans.

Potamogeton crispus.
,, densus.
,, pectinatus.
90 Carex panicea.
,, fulva.
,, acutiformis.
,, riparia.
Carex inflata.
Phragmites communis.
Catabrosa aquatica.
94 Equisetum palustre.
,, limosum.
97 Pilularia globulifera.

BALERNO MOOR, THREIPMUIR, &c.

(1) GREEN HILL PASTURE, Dry or Moist Soil.

9 Viola lutea.
10 Polygala vulgaris.
16 Hypericum humifusum.
25 Ulex europaeus.
Lotus corniculatus.
Lathyrus montanus.
26 Potentilla erecta.
38 Galium verum.
,, saxatile.
41 Achillea Millefolium.
42 Campanula rotundifolia.
55 Euphrasia officinalis.
59 Thymus Serpyllum.
83 Luzula campestris.
,, multiflora.
90 Carex pilulifera.
,, caryophyllea.
,, binervis.
91 Anthoxanthum odoratum.
Alopecurus geniculatus.
Agrostis canina.
,, alba.
,, tenuis.
Aira praecox.
Deschampsia flexuosa.
Holcus mollis.
,, lanatus.
Sieglingia decumbens.
Cynosurus cristatus.
Briza media.
Poa pratensis.
Festuca ovina.
,, rubra.
93 Pteris aquilina.
Blechnum Spicant.
Lastrea montana.
,, Filix-mas.
,, spinulosa.

(2) PEAT AND HUMUS SOILS.

25 Genista anglica.
29 Drosera rotundifolia.
43 Vaccinium Vitis-Idaea.
,, Myrtillus.
Oxycoccus quadripetala.
44 Calluna vulgaris.
Erica Tetralix.
,, cinerea.
57 Pinguicula vulgaris.
75 Empetrum nigrum.
82 Narthecium ossifragum.
83 Juncus squarrosus.
90 Scirpus caespitosus.
Eriophorum vaginatum.
,, angustifolium.
91 Molinia coerulea.
Nardus stricta.
95 Lycopodium Selago.
,, clavatum.

(3) HILL-MARSH AND STREAM.

1 Ranunculus Flammula.
13 Montia fontana.
16 Hypericum elodes.
25 Lotus uliginosus.
?6 Potentilla palustris.
27 Parnassia palustris.
29 Drosera rotundifolia.
38 Galium palustre.
40 Scabiosa Succisa.
41 Gnaphalium uliginosum.
Achillea Ptarmica.
Senecio aquaticus.
Crepis paludosa.
50 Menyanthes trifoliata.
55 Pedicularis palustris.
57 Pinguicula vulgaris.
72 Myrica Gale.
74 Salix pentandra, &c., spp.
78 Orchis mascula.
,, incarnata.
82 Narthecium ossifragum.
83 Juncus tenuis.
,, inflexus.
,, effusus.
,, bulbosus.
,, sylvaticus.
88 Triglochin palustre.
Potamogeton polygonifolius.
90 Eleocharis palustris.
Scirpus pauciflorus.
,, setaceus.
Carex dioica.
,, pulicaris.
,, echinata.
,, curta.
,, leporina.
,, Goodenowii.
,, flacca.
,, pallescens.
,, fulva.
,, flava.
,, Oederi.
,, inflata.
,, vesicaria.
91 Deschampsia caespitosa.
Glyceria fluitans.
94 Equisetum maximum.
,, sylvaticum.
,, palustre.
,, limosum.

RIVER ESK.

1 Clematis Vitalba.
Anemone nemorosa.
Ranunculus auricomus.
,, acris.
,, repens.
,, bulbosus.
,, Ficaria.
Caltha palustris.
6 Radicula Nasturtium-aquaticum.
8 Radicula sylvestris.
Barbarea vulgaris.
Arabis hirsuta.
Cardamine amara.
Cardamine pratensis.
,, hirsuta.
,, flexuosa.
Hesperis matronalis.
Sisymbrium officinale.
,, Alliaria.
Capsella Bursa-pastoris.
Lepidium Draba.
9 Viola odorata.
,, hirta.
,, Riviniana.
12 Saponaria officinalis.
Lychnis dioica.
,, Flos-cuculi.

Cerastium vulgatum.
,, arvense.
Stellaria nemorum.
,, Holostea.
,, graminea.
,, uliginosa.
Arenaria trinervia.
16 Hypericum perforatum.
,, quadrangulum.
20 Geranium sylvaticum.
,, pratense.
,, Robertianum.
Oxalis Acetosella.
,, subpurpurascens.
25 Medicago lupulina.
Lotus corniculatus.
Vicia sepium.
Lathyrus pratensis.
,, montanus.
26 Prunus avium.
,, Padus.
Spiraea salicifolia.
,, Ulmaria.
Geum urbanum.
,, rivale.
× ,, intermedium.
Potentilla sterilis.
,, erecta.
,, reptans.
,, Anserina.
Alchemilla vulgaris.
Crataegus Oxyacantha.
27 Saxifraga granulata.
Chrysosplenium oppositifolium.
31 Lythrum Salicaria.
32 Epilobium angustifolium.
,, tetragonum.
Circaea lutetiana.
34 Sanicula europaea.
Aegopodium Podagraria.
Conopodium majus.
Myrrhis Odorata.
Anthriscus sylvestris.
Angelica sylvestris.
Heracleum Sphondylium.
37 Adoxa Moschatellina.
Sambucus nigra.
Viburnum Opulus.
Lonicera Periclymenum.
38 Galium Cruciata.
,, Aparine.
Asperula odorata.
39 Valeriana officinalis.
,, pyrenaica.
41 Bellis perennis.
Achillea Millefolium.
Tussilago Farfara.
Petasites fragrans.
,, ovatus.
Doronicum Pardalianches.
Senecio vulgaris.
Centaurea nigra.
Hieracium boreale.
47 Primula vulgaris.
,, veris.
Lysimachia nemorum.
49 Vinca major.
,, minor.
52 Symphytum officinale.
,, patens.
,, tuberosum.
Pulmonaria officinalis.
Myosotis caespitosa.
,, sylvatica.
,, arvensis.
55 Scrophularia nodosa.
Mimulus Langsdorffii.
Digitalis purpurea.
Veronica hederaefolia.
,, officinalis.
,, Chamaedrys.
,, montana.
,, Beccabunga.
Melampyrum pratense.
56 Lathraea Squamaria.
59 Mentha rotundifolia.
,, aquatica.
Origanum vulgare.
Nepeta hederacea.
Lamium purpureum.
,, album.
Teucrium Scorodonia.
Ajuga reptans.
64 Polygonum Bistorta.
Rumex Acetosa.
70 Mercurialis perennis.
71 Urtica dioica.

Urtica urens.
73 Alnus rotundifolia.
Carpinus Betulus.
Corylus Avellana.
74 Salix pentandra.
,, fragilis.
,, alba.
,, purpurea.
,, viminalis.
,, caprea.
,, cinerea.
,, phylicifolia.
Populus alba.
,, tremula.
,, nigra.
78 Neottia Nidus-avis.
80 Galanthus nivalis.
82 Allium ursinum.
Scilla non-scripta.
83 Luzula sylvatica.
,, campestris.
85 Arum maculatum.
90 Carex Goodenowii.
,, caryophyllea.
,, pendula.
91 Anthoxanthum odoratum.
Milium effusum.
Aira praecox.
Deschampsia flexuosa.
Holcus mollis.
,, lanatus.
Melica montana.
,, nutans.
Dactylis glomerata.
Poa nemoralis.
,, Chaixii.
,, pratensis.
Festuca sylvatica.
Brachypodium sylvaticum.
93 Athyrium Filix-foemina.
Phyllitus Scolopendrium.
Polystichum aculeatum.
Lastrea montana.
,, Filix-mas.
Polypodium vulgare.
Phegopteris Dryopteris.
Ophioglossum vulgatum.
Botrychium Lunaria.
94 Equisetum maximum.
,, arvense.
,, sylvaticum.
,, palustre.
,, limosum.
,, hyemale.

ABERLADY, GULLANE, &c.

(1) STRAND OR BEACH.

4 Glaucium flavum.
6 Cochlearia officinalis,
Cakile maritima.
12 Silene maritima.
Arenaria peploides.
Sagina procumbens.
20 Geranium Robertianum.
28 Sedum acre.
34 Ligusticum scoticum.
41 Matricaria maritima.
Sonchus oleraceus.
,, arvensis.
46 Statice maritima.
52 Myosotis collina.
Echium vulgare.
60 Plantago maritima.
,, Coronopus.
63 Beta maritima.
Atriplex patula.
,, hastata.
,, Babingtonii.
,, laciniata.
Salsola Kali.
64 Rumex crispus.
90 Carex arenaria.
91 Agropyron junceum.
Elymus arenarius.

(2) SALT MARSHES.

6 Cochlearia officinalis.
12 Spergularia marginata.
34 Oenanthe Lachenalii.
,, crocata.
41 Aster Tripolium.
Artemisia maritima.
46 Statice maritima.
47 Glaux maritima.
60 Plantago maritima.
,, Coronopus.
63 Atriplex patula.
Salicornia procumbens.
,, dolichostachya.
,, herbacea, f. stricta and f. patula.
Suaeda maritima.
88 Triglochin maritimum.
90 Scirpus rufus.
91 Agropyron pungens.
Lepturus incurvatus (filiformis).

(3) SAND-DUNES.

4 Glaucium flavum.
6 Erophila verna.
Cakile maritima.
7 Reseda Luteola.
9 Viola Riviniana.
,, canina, var. pusilla.
12 Silene latifolia.
,, latifolia, var. puberula.
,, maritima.
Cerastium tetandrum.
,, semidecandrum.
Arenaria peploides.
17 Malva moschata.
,, rotundifolia.
20 Geranium sanguineum.
Erodium cicutarium.
25 Ononis repens, var. horrida.
Trifolium fragiferum.
Anthyllis Vulneraria.
Lotus corniculatus.
Astragalus danicus.
26 Potentilla reptans.
,, Anserina.
Rosa spinosissima.
,, Eglanteria.
34 Conium maculatum.
Pimpinella saxifraga.
Angelica sylvestris.
Caucalis Anthriscus.
37 Sambucus nigra.
38 Galium verum.
,, saxatile.
40 Dipsacus sylvestris.
41 Filago minima.
Senecio viscosus.
,, Jacobaea.
Cnicus arvensis.
Centaurea Scabiosa.
Hieracium Pilosella.
Leontodon nudicaule.
Hypochoeris radicata.
Taraxacum erythrospermum.
Lactuca muralis.
52 Lycopsis arvensis.
Myosotis collina.
,, versicolor.
Echium vulgare.
54 Solanum Dulcamara.
Hyoscyamus niger.
59 Ajuga reptans.
63 Salsola Kali.
67 Hippophae Rhamnoides.
83 Juncus inflexus.
90 Schoenus nigricans.
Carex arenaria.
,, extensa.
,, hirta.
91 Phleum arenaria.
Ammophila arenaria.

Glyceria distans.
Festuca rubra.
Agropyron pungens.
,, junceum.
Lepturus filiformis.
Hordeum marinum.
Elymus arenarius.

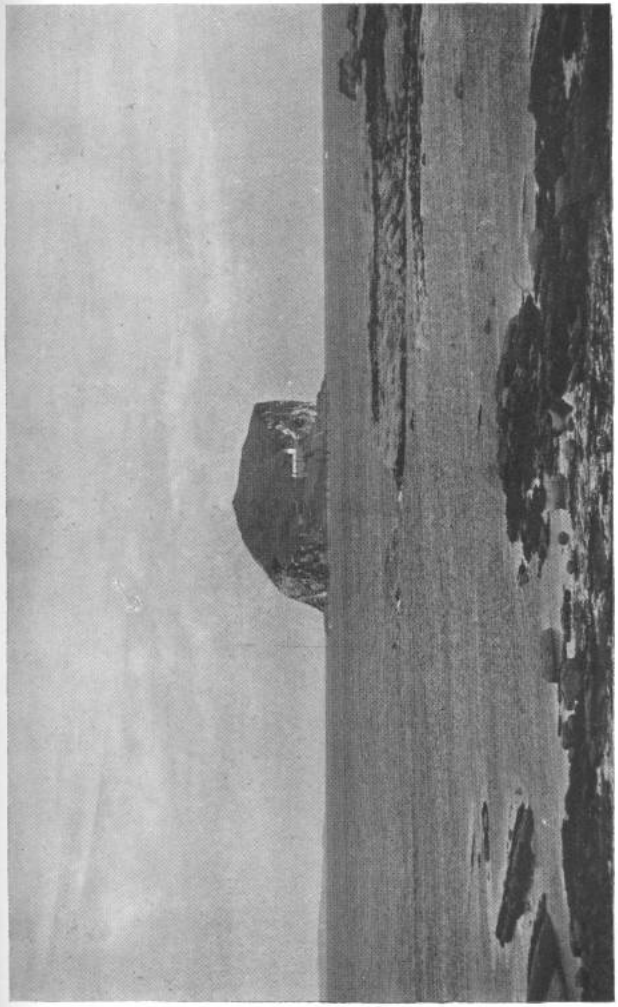
(4) SAND-DUNE MARSH (Fresh or Brackish).

25 Trifolium fragiferum.
27 Parnassia palustris.
34 Hydrocotyle vulgaris.
41 Pulicaria dysenterica.
47 Anagallis tenella.
Samolus Valerandi.
50 Menyanthes trifoliata.
57 Utricularia vulgaris.
Pinguicula vulgaris.
83 Juncus Gerardi.
87 Alisma Plantago-aquatica.
,, ranunculoides.
88 Triglochin palustre.
90 Eleocharis palustris.
,, uniglumis.
,, multicaulis.
Scirpus caespitosus.
,, setaceus.
Scirpus Tabernaemontani.
,, maritimus.
,, rufus.
Schoenus nigricans.
Carex disticha.
,, diandra.
,, paniculata.
,, vulpina.
,, muricata.
,, echinata.
,, Goodenowii.
,, flacca.
,, panicea.
,, Oederi.
,, riparia.
,, inflata.
91 Glyceria distans.

BASS ROCK.

The Flora falls into three main groups: (*a*) maritime plants, (*b*) plants constituting the grassy turf, (*c*) weeds and ruderals of the Potato patch and about the buildings.

6 Cochlearia officinalis.
12 Silene maritima.
Lychnis dioica.
Cerastium tetandrum.
,, semidecandrum.
,, viscosum.
17 Lavatera arborea.
25 Vicia lathyroides.
41 Senecio vulgaris.
Carduus crispus.
Cnicus lanceolatus.
Hieracium Pilosella.
Taraxacum officinale.
Sonchus oleraceus.
46 Statice maritima.
63 Chenopodium Bonus-Henricus.
Beta maritima.
Atriplex Babingtonii.
64 Rumex crispus.
,, Acetosa.
71 Urtica dioica.
91 Anthoxanthum odoratum.
Agrostis alba.
,, tenuis.
Holcus mollis.
,, lanatus.
Festuca ovina.
,, rubra.



BASS ROCK.

R. M. Adam.

NOTE ON ALIEN FLORA.

In the Lothians it is impossible to ignore the very large alien flora. More than a thousand alien species have been noted. Some of these have become quite naturalised and are spreading widely and quickly by field and hedgerow—their seeds carried by wind and stream. Many are merely casuals—a floating population whose numbers are kept up by repeated introductions with foreign grain, &c. Cultivated fields contain all sorts of weeds of other lands, which, by their quick-seeding are able to withstand the frequent ploughing.

Seeds are introduced with foreign cereals to flourmills and distilleries, with esparto grass to papermills, with food for domestic fowls or game, with foreign hides, with ballast thrown out at ports, or clinging to bales of any kind of merchandise. Flower, fruit and vegetable refuse from house and shop is carted to outlying districts. Many ornamental and medicinal plants have escaped or have been cast out of gardens. Trees and shrubs have been planted to improve woods and afford cover for game.

The following lists include only those that have been frequently observed in some quantity in various parts.

DOCKYARD CASUALS.

LEITH.

SPECIES which have been recorded as having been found "frequently, in some quantity" in a dockyard where refuse from quays, ships and waggons has been emptied.

1 Adonis *aestivalis*, E. Eur.
4 *Hypecoum pendulum*, E. Eur.
6 Brassica nigra.
,, oleracea.
,, *juncea*, Asia.
Nasturtium sylvestre.
,, palustre.
**Camelina sativa*, S.-.E. Eur.
,, *sylvestris*, S.-E. Eur.
**Armoracia rusticana*, E. Eur.
Conringia orientalis, Eur.
*Diplotaxis muralis, Medit.
Eruca sativa, Medit.
*Erysimum cheiranthoides, Eur.
*Lepidium *Draba*, S.-E. Eur.
,, *perfoliatum*, E. Eur.
,, *virginicum*, N. Amer.
Neslia paniculata, Eur.
Rapistrum glabrum, E. Eur.
*Senebiera pinnatifida, Eur.
*Sisymbrium *altissimum*, Eur.
*Sisymbrium *orientale*, Orient.
*Sisymbrium Irio, Eur.
12 Saponaria *Vaccaria*, E. Eur.
Silene noctiflora.
,, anglica.
,, *dichotoma*, Eur.
*Lychnis Githago, S.-E. Eur.
17 Malva rotundifolia.
,, *nicæensis*, S. Eur.
* ,, *pusilla*, Eur.
,, *aegyptia*, Medit.
19 Linum *usitatissimum*, N.-E. Afr.
25 Trigonella *maritima*, Medit.
*Medicago *sativa*, Asia.
,, denticulata.
*Melilotus *indica*, Eur.
,, altissima.
* ,, *arvensis*, Eur.
,, *sulcata*, Medit.
Trifolium *resupinatum*, S. Eur.
* ,, *hybridum*, W. Eur.
,, *isthmocarpum*, W. Eur.

Lotus *biflorus*, S. Italy.
Scorpiurus vermiculata, S. Eur.
Pisum arvense, Cult.
Phaseolus vulgaris, Cult.
Cicer arietinum, Orient.
Vicia *Ervilia*, Medit.
* ,, *dasycarpa*, Eur.
*Lathyrus Aphaca, Eur.
34 Bupleurum *protractum*, Medit.
*Carum *Petroselinum*, Italy.
Scandix Pecten-Veneris.
,, *iberica*, Eur.
Aethusa Cynapium.
Daucus Carota.
Caucalis *latifolia*, Medit.
,, *leptophylla*, S.-E. Eur.
38 Galium tricorne.
Asperula *orientalis*, Orient.
41 *Anacyclus clavatus*, S. Eur.
Anthemis cotula.
Chrysanthemum segetum.
*Matricaria *discoidea*, U.S.A.
Rhagadiolus edulis, Medit.
Centaurea *melitensis*, S.-E. Eur.
,, *Solstitialis*, Eur.
55 *Linaria *Cymbalaria*, S. Eur.
,, viscida, S Eur.
59 Lamium amplexicaule.
*Salvia *verticillata*, Eur.
,, *viridis*, Medit.
60 Plantago *Lagopus*, Medit.
63 *Chenopodium murale, Eur.
,, rubrum.
64 Polygonum *Bellardi*, E. Eur.
,, lapathifolium.
71 *Cannabis sativa*, Asia.
— *Commelina communis*, Tropics.
91 Aira *capillaris*, Eur.
Alopecurus agrestis, Eur.
Alopecurus *macrostachys*, Alg.
Apera Spica-venti.
*Avena fatua.
,, *strigosa*, Caspian.
*Bromus *arvensis*, S. Eur.
,, madritensis, Medit.
* ,, secalinus, Medit.
* ,, *tectorum*, Medit.
,, *Unioloides*, Amer.
Eragrostis major, Eur.
Lolium *temulentum*.
,, *rigidum*, Eur.
*Phalaris *canariensis*, Eur.
* ,, minor, Ch. Is.
,, *paradoxa*, Eur.
Phleum *graecum*, Gr.
,, *tenue*, S. Eur.
*Poa palustris, Eur.
Polypogon *maritimus*, Eur.
Polypogon monspeliensis, Medit.
*Cynosurus echinatus, Eur.

INTRODUCED PLANTS AND CASUALS

RECORDED FROM VARIOUS PARTS OF THE LOTHIANS.

1 *Adonis autumnalis, Eng.
Ranunculus sardous, Eng.
,, *monspeliacus*.
**Eranthis hyemalis*, Eur.
Nigella arvensis, S. Eur.
Aquilegia vulgaris, S. Eng.
Aconitum napellus, Eng.
2 **Epimedium alpinum*, Eur.
4 Papaver hybridum, Eng.
Roemeria hybrida, Eur.
5 Fumaria Vaillantii, Eng.
,, parviflora, Eng.

6 Nasturtium palustre, Ch. Is.
*Barbarea praecox, Eur.
**Alyssum maritimum*, Eur.
Erysimum *orientale*, Orient.
Brassica adpressa, Medit.
Lepidium *sativum*, Cult.
Eruca vesicaria, Spain.
Raphanus *Landra*, S. Eur.
7 *Reseda *alba*, Eur.
12 *Dianthus *Caryophyllus*, Eur.
Gypsophila viscosa, As. Min.
,, *paniculata*, Eur.
Silene anglica, Eng.
,, *laeta*, Medit.
17 *Althaea hirsuta, Eng.
*Lavatera cretica, Ch. Is.
Malva *verticillata*, Eur.
* ,, *pusilla*, Eur.
,, *parviflora*, Eur.
20 Geranium *reflexum*, Italy.
,, *nodosum*, Eur.
* ,, *phaeum*, Eur.
*Oxalis *stricta*, Amer.
*Impatiens *parviflora*, Siberia.
*Impatiens *glandulifera*, Himal.
22 Euonymus *latifolius*, Eur.
**Staphylea pinnata*, Eur.
24 Acer *Platanoides*, N. Eur.
25 *Lupinus luteus*, Eur.
Trigonella *striata*, Serbia.
,, *maritima*, S. Eur.
Medicago falcata, Eng.
,, denticulata, Eng.
,, *tornata*, Portugal.
Medicago *sphaerocarpa*, Medit.
Medicago *laciniata*, S. Eur.
Melilotus *infesta*, Sicily.
Trifolium subterraneum, Eng.
,, *tomentosum*, S. Eur.
* ,, *agrarium*, Eur.
,, *isthmocarpum*, W. Eur.
Astragalus *Stella*, S. Eur.
,, *hispidulus*, Arab.
Coronilla scorpioides, Eur.
Onobrychis viciaefolia, Eng.
*Vicia gracilis, Eur.
*Lathyrus *hirsutus*, Eur.
26 *Potentilla *norvegica*, Eur.
*Poterium *polygamum*, Eur.
Acaena laevigata, Magellan.
27 *Tellima grandiflora*, N. Amer.
33 *Cucumis sativus*, India.
34 *Astrantia helleborifolia*, Cauc.
Bupleurum rotundifolium, Eng.
**Ammi majus*, Medit.
* Heracleum *giganteum*, Cauc.
Coriandrum sativum, Eur.
Caucalis *latifolia*, Medit.
* ,, *daucoides*, Persia.
,, arvensis, Eng.
36 *Cornus *stolonifera*, N. Amer.
37 *Sambucus *racemosa*, Eur.
**Symphoricarpus racemosus*, N. Amer.
38 Asperula *arvensis*, Eur.
41 Aster Linosyris, Eng.
Filago spathulata, Eng.
**Anaphalis margaritacea*, N. Amer.
*Inula Helenium, Eur.
Guizotia abyssinica, Afr.
Anthemis arvensis, Eng.
Chrysanthemum *macrophyllum*, E. Eur.
Artemisia *sericea*, Siberia.
*Senecio sarracenicus, Eur.
,, *aegyptius*, Egypt.
Centaurea Calcitrapa, Eng.
,, *iberica*, Persia.
,, Solstitialis, E. Medit.
*Tragopogon *porrifolium*, Eur.
42 *Campanula persicifolia, Eur.
Legousia hybrida, Eng.
52 *Omphalodes verna*, S. Eur.

Amsinckia Lycopsoides, Calif.
Lithospernum purpureo-coeruleum, Eng.
54 *Lycopersicum esculentum*, S. Amer.
55 Verbascum *sinuatum*, S. Eur.
Antirrhinum Orontium, Eng.
**Erinus alpinus*, Eur.
*Veronica triphyllos, Eng.
*Veronica *peregrina*, N. Amer.
59 Nepeta Cataria, S. Eng.
*Stachys *annua*, Eur.
**Leonurus Cardiaca*, S. Eur.
62 **Amaranthus retroflexus*, N. Amer.
64 Polygonum lapathifolium, Eng.
*Polygonum *cuspidatum*, Japan.
Fagopyrum sagittatum, Eur.
65 *Asarum europaeum, Eur.
70 *Mercurialis annua, S. Eur.
82 Maianthemum bifolium, Yorks.
Smilacina stellata, N. Amer.
Convallaria majalis, Eng.
Muscari racemosum, E. Eng.
*Tulipa sylvestris, Eur.
91 *Panicum *lineare*, Eur.
* ,, *Crus-Galli*, Eur.
Setaria viridis, Eur.
,, *glauca*, Eur.
,, *verticillata*, Eur.
*Phalaris minor, Ch. Is.
,, *paradoxa*, Eur.
*Anthoxanthum *aristatum*, Eur.
*Agrostis verticillata, Ch. Is.
Polypogon monspeliensis, Eng.
Gastridium lendigerum, Eng.
Lagurus ovatus, Ch. Is.
Aira *Cupaniana*, S. Eur.
Cynodon Dactylon, S.-W. Eng.
Koeleria *scabriuscula*, Spain.
*Briza *maxima*, Eur.
Poa bulbosa, Eng.
Festuca membranacea, Eng.
Festuca *ciliata*, Eur.
Bromus *inermis*, Eur.
,, molliformis, Eng.
,, *Alopecuroides*, Eur.
,, *macrostachys*, Eur.
,, *japonicus*, Eur.
Triticum *cylindricum*, Eur.
,, *ventricosum*, Eur.

GLOSSARY.

Aberrant, deviating from the normal.
Abortive, imperfectly developed.
Acaulescent, with a very short stem.
Accrescent, growing larger after flowering.
Accumbent, lying against.
Acerose, needle-pointed.
Achene, a one-seeded indehiscent fruit, with pericarp not adhering to the testa.
Achlamydeous, applied to a flower without a perianth.
Acicular, needle-shaped with distinct edges.
Acrogenous, growing only at the top.
Acropetal, applied to the order of development of a racemose inflorescence with flowers opening from below towards the apex—*e.g.*, Foxglove.
Actinomorphic = *Regular*, with radial symmetry, *i.e.*, when divisible into symmetrical halves in as many planes as there are parts in the flower—*e.g.*, Buttercup.
Aculeate, prickly.
Acuminate, with a long narrow point.
Acyclic, applied to a flower whose floral whorls each have a spiral arrangement—*e.g.*, Water-lily.
Adhesion, union between dissimilar parts.
Adnate, applied to one part (the smaller) of a plant united to another along its whole surface, so that it cannot be separated without laceration.
Adpressed, pressed closely to another part.
Adventitious, applied to roots which arise from the tissue of the stem, also to buds arising in an unusual position.
Aestivation, arrangement of floral leaves in the bud with regard to one another.
Aeterio, aggregate fruit — *e.g.*, Buttercup (achenes) and Bramble (drupes).
Agglomerate, clustering.
Ala, wing, lateral petal in flowers of the pea family.
Algae, thallophytic plants which contain chlorophyll, mostly aquatic—*e.g.*, Seaweed.
Allogamy, cross-pollination.
Alternate, applied to leaves which rise singly at each node (spiral phyllotaxis).

Amentum = *Catkin*, a long, pendulous, deciduous spike bearing unisexual flowers—*e.g.*, Willow.
Amplexicaul, clasping.
Anastomose, unite at the ends.
Androecium, the male elements taken collectively—stamens.
Anemophilous, applied to flowers whose pollen is carried by the wind.
Angiosperms, highest type of flowering plants, bearing ovules in a *closed* ovary.
Anterior, applied to the part of a flower farthest from the axis, or facing the prophyll or bract in whose axil the flower arises.
Anther, that part of the stamen which bears pollen.
Anthesis, the time during which the flower is in bloom, or the act of opening of the flower.
Apetalous, without petals.
Apicifixed, applied to an anther suspended as if fixed to the filament by its top.
Apiculate, ending in a small hard point.
Apocarpous, when the carpels are all free and distinct.
Arcuate, curved.
Aril, an outgrowth from the placenta which sometimes encompasses the seed—*e.g.*, Yew ; or from the testa in the form of a membrane—*e.g.*, Water-lily ; or a tuft of hairs—*e.g.*, Willow.
Aristate, awned or bearded, with a fine hair-like point.
Articulate, jointed, separated easily by a clean scar.
Asperous, rough.
Attenuate, tapering gradually to a point.
Auricle, lobe at the base of a leaf, &c.
Autogamy, self-pollination.
Auto-pollinated, when the stigma has received pollen from the stamens of another flower on the same plant.
Awn, bristle-like process.
Axil, angle formed between the leaf and the branch.
Axile, applied to placentation when the ovules are borne at the centre of the ovary on the united margins of the carpels—*e.g.*, Lily.
Axis, main stem or root.

Baccate, applied to an indehiscent fruit with a pulpy pericarp.
Barren, applied to shoots or fronds that do not bear reproductive organs.
Basal, applied to placentation when the ovules arise directly from the floor of the ovary.
Basifixed = *innate*, applied to an anther when firmly attached by its base to the filament.
Beaked, ending in a long hard point.
Berry, fruit with a succulent pericarp without stony endocarp.
Bicarpellary, applied to an ovary when it consists of two carpels, whether united or separate.

Biennial, a plant that prepares in its first year of growth for reproduction in the second.
Bifarous, with two opposite rows.
Bifid, cleft nearly half-way, into two parts.
Binate, in pairs.
Biparous = *dichasial*, applied to cymes with two daughter axes at each branching—*e.g.*, Chickweed.
Bipartite, cleft nearly to the base.
Bipinnate, applied to leaflets of pinnate leaves that are themselves pinnate.
Bipinnatifid, applied to leaflets of pinnatifid leaves that are themselves pinnatifid.
Bract, modified leaf on the peduncle.
Bracteole, small modified leaf on the pedicel or close under a flower.
Bryophytes, cellular cryptogamic plants without well-defined vascular skeletons; the higher forms (mosses and liver-worts) show well-defined "alternation of generations," and have stems and leaves but no *true* roots, only rhizoids.
Bud, a resting, partially developed shoot.
Bulb, a small disc-like stem bearing buds and fleshy leaves: (*a*) *scaly* bulb with narrow swollen leaves—*e.g.*, Lily; (*b*) *tunicated* bulb with broad swollen leaves—*e.g.*, Onion.
Bulbil, small axillary bulb, which separates from the parent plant, and is capable of producing a new individual—*e.g.*, Allium Paradoxum.
Bulbous, with a swelling at the base.
Bullate, puckered.

Caducous, applied to a leaf, &c., which falls off as soon as it is completely unfolded from the bud.
Caespitose, growing in tufts of closely-set short stems.
Calcarate, spurred.
Callus, a hardened part.
Calyx, the outer whorl of a flower—sepals taken collectively.
Campanulate, bell-shaped.
Capillary, hair-like.
Capitate, applied to a stigma ending in a rounded head.
Capitulum, an inflorescence of sessile flowers crowded into a "head" on a short broad axis—*e.g.*, Daisy.
Capreolate, tendrilled.
Capsule, a dry dehiscent fruit formed from a syncarpous ovary opening (*a*) by apical teeth—*e.g.*, Campion; or (*b*) by valves—*e.g.*, Lily; or (*c*) by pores—*e.g.*, Poppy; or (*d*) by a lid—*e.g.*, Pimpernel.
Carcerulus, a fruit formed from a bicarpellary but quadrilocular ovary, which splits into four nutlets—*e.g.*, Deadnettle.
Carina, keel; anterior petals of the flower of the pea family.

Carpel, one of the rolled-up modified leaves of which the pistil is composed.
Carpophore, small stalk of the ovary.
Caruncle = *strophiole*, outgrowth from the testa of a seed near the funicle.
Caryopsis, a dry indehiscent one-seeded fruit whose pericarp is membranous—*e.g.*, Wheat.
Casual, a plant, not truly wild, which occurs occasionally for a year or two, but does not become established.
Catkin. See *Amentum*.
Caudicle, stalk of the pollinium of an orchid.
Caulescent, with a well-defined stem.
Cauline, relating to the stem.
Centrifugal, applied to the order of development of a cymose inflorescence, with flowers opening from the centre outwards—*e.g.*, Chickweed.
Centripetal, developing towards the centre from without.
Chlorophyll, the green colouring matter of plants which, by absorbing certain rays of the sun, enables the plant to assimilate carbon.
Cicatrix, scar left by the separation of parts.
Ciliate, fringed with fine hairs—*e.g.*, Beech-leaf.
Circinate, in prefoliation, when the young leaves in the buds are bent like a crozier,—the apex of the leaf rolled transversely upon the lower parts—*e.g.*, Fern.
Cirrhose, tendrilled.
Cladode = *phylloclade*, flattened leaf-like branch—*e.g.*, Butcher's Broom.
Clavate, club-like.
Claw, long narrow base of some petals—*e.g.*, Campion.
Cleistogamic = *Cleistogenous*, applied to inconspicuous flowers which do not open, but set seed by self-fertilisation.
Cocci, nutlets, portions of a partially dehiscent fruit — *e.g.*, Comfrey.
Cochleate, shaped like the shell of a snail.
Cohesion, union between similar parts.
Column, part of the flower of the orchid formed by the cohesion of the filaments with the style.
Commissure, inner face of a mericarp. See *Cremocarp*.
Conduplicate, in prefoliation, when the young leaves are folded down the midrib like a book—*e.g.*, Cherry.
Cone, dry woody fruit composed of scales bearing naked seeds—*e.g.*, Pine.
Connate, applied to parts so closely united that they cannot be separated without laceration; each part is adnate to the other.
Connective, part of the filament connecting the lobes of the anther.
Connivent, converging towards the summit.
Convolute, in prefoliation, when the young leaf is rolled up longitudinally like a scroll of paper—*e.g.*, Plum.

Cordate, heart-shaped.
Coriaceous, tough, leathery.
Corm, a short, swollen underground stem, bearing buds and membranous leaves above and adventitious roots below—*e.g.*, Crocus.
Corolla, petals taken collectively.
Corona, tube formed by membranous outgrowths (fused ligules) on inner surface of perianth—*e.g.*, Daffodil.
Cortex, outer layers of the stem.
Corymb, a racemose inflorescence whose lower branches are long enough to bring all the flowers to the same level—*e.g.*, Candituft.
Costate, with ribs or ridges.
Cotyledons, the first embryonic leaves, sometimes forming a store of food in the seed (*e.g.*, Bean), and sometimes coming above ground, when they function as simple foliage leaves (*e.g.*, Sycamore).
Crateriform, saucer-shaped.
Creeping, trailing and giving off adventitious roots.
Cremocarp = *diachenium*, a dry schizocarpic fruit formed from a bilocular ovary which splits into two mericarps, which are one-seeded and indehiscent—*e.g.*, Sweet Cicely.
Crenate, with rounded marginal teeth.
Cross-pollinated, when the stigma has received pollen from flowers on a different plant.
Cruciate, having the form of a cross with equal arms.
Cryptogams, plants which show a well-marked "alternation of generations," but do not produce flowers borne on inflorescences.
Culm, jointed hollow stem.
Cuneate, wedge-shaped.
Cupule, cup in which a nut grows.
Cuspidate, abruptly pointed, but with a broad base.
Cuticle, external layer of a plant, sometimes consisting of a tough membrane.
Cyathium, peculiar inflorescence of the spurge, in which a cup-shaped involucre surrounds several male and one female flower.
Cyclic, applied to a flower all of whose parts are arranged in whorls —*e.g.*, Lily.
Cyme, inflorescence in which the axis ends in a flower after bearing daughter-axes, each of which may repeat the process, the flowers being developed in centrifugal succession.
Cypsela, an inferior achene often with a feathery persistent calyx or pappus—*e.g.*, Dandelion.
Cynarrhodium, aggregate fruit of many achenes enclosed in a deep hollow fleshy receptacle—*e.g.*, Rose.
Cytology, study of cell structure.

Deciduous, applied to trees whose leaves fall in autumn or earlier.
Declinate, applied to an androecium, whose stamens are all exserted and bent to one side.

Decompound, made up of many similar parts, which are much divided.
Decumbent, prostrate, with the apex tending to rise.
Decurrent, applied to a leaf when its lamina tends to run down the stem forming a "wing."
Decussate, applied to leaves in whorls of two, alternately set at right angles, thus forming four rows on the stem—*e.g.*, Deadnettle.
Deflexed, curved downwards.
Defoliation, the losing of leaves.
Dehiscence, the act of splitting into regular parts.
Deltoid, applied to a triangular leaf—*e.g.*, Orache.
Dentate, with short teeth triangular in shape.
Denticulate, with very fine teeth.
Depressed, sunk down, as if growth had taken place horizontally.
Determinate, applied to an inflorescence which ends in a flower.
Diachenium. See *Cremocarp*.
Diadelphous, applied to an androecium with one free stamen and nine others united by their filaments—*e.g.*, Pea.
Diandrous, applied to a flower with two stamens.
Dichasial. See *Biparous*.
Dichlamydeous, applied to a flower with a perianth of two whorls.
Dichogamous, applied to a flower whose stamens and pistil ripen at different times.
Dichotomous, branching in pairs.
Diclinous, applied to plants bearing male (♂) and female (♀) flowers on separate plants—*e.g.*, Willow.
Dicotyledon, plant with two cotyledons.
Didymous, formed of two similar parts attached to each other by a small portion of their margin.
Didynamous, applied to an androecium consisting of two pairs of stamens of different lengths—*e.g.*, Deadnettle.
Diffuse, widely spreading.
Digitate, palmately compound, when several leaflets radiate from one point of the leaf-stalk.
Digynous, applied to a flower whose ovary is composed of two carpels.
Dimerous, of two parts.
Dimorphic, applied to flowers having two forms in one species, with stamens and styles of different lengths—*e.g.*, Primrose ("pin-eyed and thrum-eyed").
Dioecious, bearing male (♂) and female (♀) flowers on distinct plants—*e.g.*, Red Campion.
Diplostemonous, having twice as many stamens as there are members in one whorl of the perianth, with the stamens alternating correctly.
Disc, a fleshy glandular outgrowth of the torus, which sometimes secretes nectar.
Dissected, cut into many narrow segments.

Dissepiments = true septa, partition walls of an ovary formed by the inturning of the carpellary leaves.
Distichous, applied to leaves arranged on the stem in two vertical rows—*e.g.*, Grass.
Dithecous, applied to a complete anther of two lobes.
Divaricate, spreading at an obtuse angle.
Divergent, gradually separating towards the summit.
Dorsal, applied to the suture of a closed carpel, which corresponds to the midrib.
Dorsifixed = *Adnate*, applied to an anther when the filament is continued throughout its whole length.
Dorsiventral, applied to the symmetry of those plant members which are divisible equally in one plane only.
Drupe, a fruit whose pericarp is of three layers, a thin epicarp, a fleshy mesocarp, and a stony endocarp enclosing the seed—*e.g.*, Cherry.

Echinate, covered with prickly protuberances longer than warts.
Ecology, the study of how the form and structure of plants is adapted to their environment.
Emarginate, slightly notched at the end.
Embryo, the young plant contained in the seed.
Endocarp, the inmost layer of the pericarp of a fruit.
Endogen. See *Monocotyledon*.
Endosperm, tissue found in the seed for the nutrition of the embryo.
Ensiform, sword-shaped.
Entire, without lobes or incisions.
Entomophilous, applied to flowers whose pollen is carried by insects.
Epicalyx, an outer calyx.
Epicarp, outer layer of the pericarp of a fruit.
Epidermis, skin, outermost layer of cells of a plant.
Epigeal, applied to cotyledons which come above ground and form the first green foliage leaves—*e.g.*, Sunflower.
Epigynous, applied to a flower in which the torus is united with the ovary which is inferior—*e.g.*, Daffodil.
Epipetalous, applied to stamens when united by their filaments to the corolla.
Epiphyllous, applied to stamens when united by their filaments to the perianth.
Epiphyte, a plant which grows upon another, but which does not derive nourishment from it—*e.g.*, tropical orchids.
Equitant, in prefoliation, when each young leaf embraces its successor.
Erose, irregularly toothed.
Etaerio, cluster of small fruits—*e.g.*, Bramble.
Etiolate, applied to plants grown under reduced light; slender and sickly yellow in colour.
Exogen. See *Dicotyledon*.
Exserted, when projecting above the surrounding organ.

Exstipulate, without stipules.
Extrorse, applied to the dehiscence of anthers, when the opening for pollen-escape is directed away from the ovary.

Falcate, sickle-shaped.
Farinose, mealy.
Fascicle, a clustered form of biparous cyme with reduced axes—*e.g.*, Sweet William.
Fasciculate, arranged in a bundle.
Fasciation, a peculiar condition of a plant arising from the simultaneous growth of several dormant buds without any apparent necessity, such as the destruction of the main stem.
Fastigiate, pyramidal.
Fertile, applied to shoots which have the capacity for bearing reproductive organs.
Fertilisation, fusion of the generative cell of the pollen-tube with the egg-cell of the ovule.
Filament, stalk usually found supporting the anther.
Filiform, thread-like.
Fimbriated, with long slender processes on the margin.
Fistulose, hollow.
Flagellum = *Runner*, creeping stem with long whip-like internodes and adventitious roots at the nodes—*e.g.*, Strawberry.
Floccose, with little woolly tufts.
Foliaceous, having texture and appearance of leaves.
Follicle, a one-celled dehiscent fruit opening along the ventral suture (the side which bears the seed).
Foramen. See *Micropyle*.
Free-central, applied to placentation when the ovules are borne on an axile column rising from the floor of the ovary and not connected with the outer wall—*e.g.*, Primrose.
Frond, leaf of a fern.
Fruit, product of the growth induced by fertilisation.
Fruticose, shrubby.
Fugacious, falling off early.
Fungi, thallophytic plants which do not possess chlorophyll, but live on a host-plant or on decaying matter—*e.g.*, Mushroom.
Funicle, stalk which connects the ovule with the placenta.
Furcate, forked.
Fusiform, spindle-shaped.

Galeate, helmet-shaped.
Gamosepalous, applied to a calyx with united sepals.
Gamopetalous, applied to a corolla with united petals.
Gamophyllous, applied to a perianth whose parts are united.
Geitonogamy, pollination by pollen from another flower on the same plant.
Geniculate, bent like a knee.
Gibbous, swollen on one side.

Glabrous, smooth, without hairs.
Gland, a small organ containing special secretions such as oils, &c.
Glans, a nut with an involucre—*e.g.*, Acorn.
Glaucus, green with a whitish bloom.
Glomerule, a small round cyme resembling a capitulum.
Glumaceous, glume-like ; chaffy.
Glumes, scale-like bracts that enclose the spikelets of grass flowers ; the imbricate bracts of sedges.
Glumella, an inner scale-like bract of grass flowers.
Gymnosperm, a plant whose ovules are borne freely exposed on the surface of the carpels or cone-scales—*e.g.*, Pine ; or in arils—*e.g.*, Yew.
Gynandrous, applied to stamens when united to the style—*e.g.*, Orchid.
Gynobasic, applied to an ovary which has several lobes, but only one style attached to the base of the lobes—*e.g.*, Deadnettle.
Gynaecium, female elements taken collectively (ovary, style, stigma).

Habit, general appearance of the plant.
Halophyte, salt-loving plant found in salt marshes, &c.
Hastate, halbert-shaped, with two basal lobes turning outwards—*e.g.*, Sheep's Sorrel.
Haulm. See *Culm*.
Haustorium, sucker or disc-like outgrowth by which a parasitic plant is attached to its host.
Helicoid, applied to a uniparous cyme whose daughter-axes are developed on the same side.
Herbaceous, applied to stems which are not woody, and to other organs when they are green and leaf-like.
Hermaphrodite, applied to a plant whose flowers are "perfect" (☿) *i.e.*, having stamens and pistil in each flower.
Heterostyled, applied to flowers when stamens and styles are of different lengths in different flowers of the same species—*e.g.*, Primrose (2), Oxalis (3).
Hilum, scar produced on a seed by its separation from the placenta.
Hirsute, covered with long hairs.
Hispid, covered with stiff hairs.
Histology, study of the finer features of the internal structure of plants with the aid of the microscope.
Holosericeous, silky to the touch owing to the presence of minute hairs.
Hydrophyte, water-loving plant, which lives *in* water.
Hygrophyte, moisture-loving plant.
Hypocrateriform. See *Salver-shaped*.
Hypogeal, applied to cotyledons which do not come above-ground, but remain in the seed, supplying food material to the young plant.

Hypogynous, applied to a flower whose whorls are superposed on the torus in regular order, the gynaecium being superior.

Imbricate, arranged like the tiles on a roof.
Imparipinnate, applied to a pinnately compound leaf which has a terminal leaflet.
Incised, deeply cut.
Indefinite, numerous.
Indehiscent, not bursting when ripe.
Indigenous, native, not known to have been introduced recently.
Induplicate, in prefoliation, when leaves in the bud are open, and have their margins rolled inward.
Indusium, membranous covering over spore-clusters of ferns.
Inferior, applied to an ovary when it is below the calyx, as in the epigynous condition.
Inflorescence, the arrangement of the flowering-branches and of the flowers upon them.
Infundibuliform, funnel-shaped.
Innate. See *Basifixed*.
Internode, portion of the stem between the nodes.
Interruptedly pinnate, with large and small leaflets alternating.
Introrse, applied to the dehiscence of anthers when the opening for pollen-escape is directed towards the ovary.
Involucel, the whorl of bracts at the base of a secondary umbel.
Involucre, the whorl of bracts at the base of an umbel or flower-head.
Involute, in prefoliation, when the young leaf in the bud is rolled towards the middle of the upper face—*e.g.*, Water-lily.
Isobilateral, applied to a flower divisible into two symmetrical halves.
Isomerous, when each whorl consists of the same number of parts.
Isostemonous, equal in number to one whorl of the perianth.
Irregular = *Zygomorphic*, applied to a flower divisible into two symmetrical halves in only one plane.
Irritable, applied to plants that respond in a peculiar manner to external changes—*e.g.*, Wood Sorrel.

Jugate, arranged in pairs.

Keel. See *Carina*.

Labellum, lower lip of orchid formed by posterior petal.
Labiate, two-lipped.
Laciniate, as if torn, or cut into long, narrow, irregular segments.
Laevigate, as if polished.
Lamina, the blade of a leaf.
Lanate, woolly, when the hairs are long and intricate like wool.
Lanceolate, narrowly elliptical, tapering at each end.
Lanuginose, covered with woolly hairs.
Latex, a viscid, often milky fluid, found in special vessels of certain species—*e.g.*, Dandelion.

Lax, loosely arranged.
Leaflet, the subdivision of a compound leaf.
Legume, pod; a one-celled dehiscent fruit which opens along both sides—dorsal and ventral sutures—*e.g.*, Pea.
Lenticels, breathing pores in the bark of trees.
Lenticular, shaped like a bi-convex lens.
Ligulate, strap-shaped.
Ligule, small membranous scale found at the base of the upper surface of the lamina of many grass leaves, also at the base of petals.
Limb, flat expanded portion of a leaf or petal.
Linear, very long and narrow, with parallel sides.
Lingulate, tongue-shaped.
Loculicidal, applied to the longitudinal dehiscence of capsules along the dorsal sutures of the component carpels—*e.g.*, Iris.
Loculus, a cavity in an ovary, or an anther.
Locusta, spikelet.
Lodicule, minute scale within a grass flower.
Lomentum, pod contracted between the seeds—*e.g.*, Bird'sfoot.
Lunate, sickle-shaped or crescent-shaped.
Lyrate, applied to a pinnatifid leaf having a large, rounded, terminal lobe, the other lobes becoming smaller towards the petiole.

Marginal, applied to the dehiscence of an anther when the opening is on the edges.
Marcescent, fading, but not falling off when ripe.
Medullary Ray, plates of living cells traversing the wood in a radial direction.
Membranous, thin, more or less translucent and not stiff; chaffy.
Mericarp, half of a cremocarp.
Mesocarp, mid-layer of the pericarp of a fruit—*e.g.*, the fleshy part of a plum.
Mesophyte, a plant which requires only an average amount of moisture.
Metamorphosed = *Modified*, applied to organs which have assumed the forms of other organs—*e.g.*, the branch-spines of Barberry and cladodes of the Butcher's Broom.
Micropyle = *Foramen*, small opening in the testa of a seed.
Monadelphous, applied to an androecium whose stamens are united by their filaments—*e.g.*, Whin.
Monochasial = *Uniparous*, applied to a cyme in which the single daughter-axes are developed either alternately right and left (Scorpioid), or all on one side (Helicoid).
Monochlamydeous, applied to a flower with a perianth of one whorl.
Monoecious, applied to a species which bears male (♂) and female (♀) flowers on the same plant—*e.g.*, Hazel.
Monoclinous, Hermaphrodite.
Monocotyledon, plant which has only one cotyledon.

Monopodial, applied to a rhizome or stem whose main axis continues to grow in length at the apex.
Monothecous, applied to an anther with one lobe.
Morphology, study of the forms and relative positions of plant members.
Mucronate, tipped with an abrupt hard point.
Multicostate, many-ribbed.
Multifid, cleft into many lobes or segments.
Multiparous, applied to cymes with three or more daughter-axes formed at each branching—*e.g.*, Elder.
Muricate, covered with small points or warts.

Naturalised, applied to plants growing freely from self-sown seed, though not native.
Nectar, sugary secretion poured out by special glands to attract insects to the flower.
Nervation, arrangement of veins in a leaf.
Neuter, applied to a flower in which both stamens and pistil are imperfect or wanting.
Node, the part of a stem from which a leaf arises; a joint.
Non-deciduous = *Evergreen*, applied to trees, &c., whose leaves remain till a new crop has been formed—*e.g.*, Holly.
Nut, dry, indehiscent, one-seeded fruit with stony pericarp—*e.g.*, Hazel.

Oblong, about three times as long as broad, with rounded angles.
Obovate, egg-shaped, with the narrower end at the base.
Obtuse, blunt.
Obvolute, when the half of a folded leaf receives the half of another leaf folded in a similar manner.
Ochrea, *ocrea*, a tubular membranous sheath surrounding the stem at a node (fused stipules).
Offset, short branch arising in the same way as a stolon—*e.g.*, House-leek.
Opercular, applied to dehiscence of anthers by valves.
Ovary, the seed-box before fertilisation.
Ovate, egg-shaped, with the broader end at the base.
Ovule, early form of the future seed before fertilisation.

Palate, the projecting part of the lower lip which closes the mouth of a personate corolla.
Palea, chaffy "flowering glume," or membranous bract of a grass flower.
Palmate, digitate, applied to a multicostate leaf where the main ribs diverge from one point.
Panduriform, fiddle-shaped.
Panicle, a loosely-branched raceme or corymb.

Papilionaceous, butterfly-shaped, like the flower of the pea, whose corolla is composed of five petals—one standard (vexillum), two wings (alae) and two joined to form keel (carina).
Papillose, covered with small soft protuberances.
Pappus, silky hairs attached to a fruit to aid in its dispersal (a modified calyx)—*e.g.*, "Dandelion Clock."
Parasite, a plant which takes the whole or part of its food from another plant—*e.g.*, Toothwort and Mistletoe.
Parietal, applied to placentation when the ovules are attached to the walls of the ovary.
Paripinnate, pinnately compound without a terminal leaflet.
Patent, spreading widely.
Partite, cleft, so that the incisions reach more than half-way, but not more than three-quarters, of the distance to the middle of the lamina.
Pectinate, cleft, with narrow parallel segments like a comb.
Pedate, applied to a multicostate leaf, where the branching is at first ternate, but the two outer branches are forked.
Pedicel, the last branch of an inflorescence, bearing a single flower.
Peduncle, the main stalk which bears an inflorescence.
Peltate, shield-like, applied to a leaf attached to its petiole by the centre or by some point within the margin—*e.g.*, Pennywort.
Penicillate, tufted, brush-like.
Perfoliate, applied to a leaf which surrounds the stem.
Perennial, a plant which persists for more than two years.
Perianth, floral envelope when the calyx and corolla are alike, or when either is absent.
Pericarp, seed-vessel developed from the ovary, often consisting of three parts—epicarp, mesocarp, endocarp.
Perigone, seed-covering of carex.
Perigynous, applied to a flower in which the torus forms an open cup with the gynaecium at the bottom and the other whorls at the margin—*e.g.*, Rose.
Personate, applied to a two-lipped gamopetalous corolla, the tube of which is closed by a projection (palate) from one of the lips—*e.g.*, Snapdragon.
Petals, modified leaves which form the corolla.
Petiole, leaf-stalk.
Petiolule, stalk of a leaflet.
Phanerogam = *Spermatophyte*, a plant which produces flowers on inflorescences.
Phyllaries, bracts forming the involucre of Compositae.
Phylloclade = *Cladode*, flattened leaf-like branch—*e.g.*, Butcher's Broom.
Phyllode, flattened leaf-like petiole—*e.g.*, Lathyrus Aphaca.
Phyllotaxis, arrangement of leaves on a stem—spiral, cyclic.
Physiology, study of how the plant-organs function in the various life-processes.
Pileorhiza, root-cap.

Pilose, covered with long scattered hairs.
Pinna, segment of a pinnate leaf.
Pinnate, applied to compound leaves whose leaflets are arranged in pairs along a common axis or rachis.
Pinnatifid, applied to a simple leaf cut almost to the middle in a pinnate manner.
Pinnule, segment of a leaflet on a bipinnate leaf.
Pistil, *Gynaecium*, ovule-bearing organ of a flower formed of carpels, each of which is composed of ovary, style and stigma, when complete.
Placenta, the part of the ovary to which the ovule is attached.
Placentation, the arrangement of the ovule-bearing outgrowths in the ovary.
Plicate, in prefoliation, when the young leaf is pleated like a fan —*e.g.*, Beech.
Plumule, embryonic shoot, the ascending axis (epicotyl) of the embryo, which, on germination, rises above the cotyledons bearing young foliage leaves.
Pod. See *Legume*.
Pollen, small grains developed in the anther, which carry the male generative cell to the stigma.
Pollinium, an aggregation of pollen grains in one mass—*e.g.*, Orchid.
Polyadelphous, applied to an androecium whose stamens are united by their filaments into several bundles—*e.g.*, St John's Wort.
Polyandrous, applied to an androecium when its parts are free.
Polygamous, applied to a species which produces male, female, and hermaphrodite flowers on one plant—*e.g.*, Ash.
Polyphyllous, applied to a perianth when the parts of its whorls are free.
Pome, compound fruit, consisting of several one-seeded leathery or stony pericarps enclosed in a fleshy torus—*e.g.*, Apple and Haw.
Posterior, applied to the part of the flower nearest the axis.
Prefoliation, folding (Ptyxis) and arrangement (Vernation) of the young leaves in a bud.
Premorse, suddenly ending in a jagged outline, as if bitten.
Prickle, a hard sharply-pointed excrescence from the epidermis.
Procumbent, prostrate ; lying flat on the ground.
Proliferous, applied to a plant on which adventitious buds produce roots, and become distinct plants before separating from the parent plant.
Prophyll, a scaly two-ribbed bracteole ; upper palea of grass-flower enclosing stamens, pistil, and lodicules.
Protandrous, applied to a flower whose stamens dehisce before the stigma is ripe.
Prothallus, a plant which forms the first stage in "the alternation of generations." It consists of a small plate of green tissue with rhizoids, developed from a spore. On this the sexual organs arise, and after fertilisation the Sporophyte (*e.g.*, Fern) is developed.

Protogynous, applied to a flower whose stigma ripens before the stamens dehisce.
Pteridophyte, a vascular cryptogamic plant having stem, roots, and leaves, and showing obvious "alternation of generations"—*e.g.*, Fern.
Ptyxis, folding of the young leaf in the bud,—the way it is rolled or folded on itself.
Pubescent, downy; covered with short, soft, adpressed hairs.
Pulvinus, swollen rounded leaf-base, usually irritable.
Putamen, endocarp of a drupe, either cartilaginous or woody ("stone").
Pyrene, "stone" of a drupe.
Pyxis, Pyxidium, capsule with transverse dehiscence—*e.g.*, Scarlet Pimpernel.

Raceme, an inflorescence with lengthened axis, and equally pedicellate flowers.
Rachis, axis of an inflorescence or of a compound leaf.
Radical, relating to the root.
Radicle, embryonic root.
Receptacle = *Thalamus* = *Torus*, end of the peduncle, to which are attached the calyx, corolla, &c., of the flower.
Reclinate, in prefoliation, with the upper half of the leaf folded transversely upon the lower half.
Recurved, bent backwards to a slight extent.
Reflexed, bent backwards to a considerable extent.
Regular. See *Actinomorphic*.
Regma, schizocarpic fruit which splits into dehiscent parts (cocci)—*e.g.*, Geranium.
Reniform, kidney-shaped.
Repand, with wavy margin.
Replum, median partition of a siliqua.
Resupinate, inverted by twisting—*e.g.*, the labellum of Orchid by twisting of the inferior ovary.
Reticulated, forming a network of veins or ridges.
Retuse, blunt at the apex, with a shallow notch.
Revolute, in prefoliation, when the young leaf is rolled towards the middle of the lower face—*e.g.*, Dock.
Rhizoid, cellular outgrowth like a root hair by which Bryophytic plants absorb water and fix themselves.
Rhizome, an underground stem giving off buds above, and roots below.
Rhomboid, applied to a squarish leaf with the petiole attached to one corner.
Ringent, gaping, applied to a two-lipped gamopetalous corolla, the tube of which is open—*e.g.*, Deadnettle.
Root-cap, protective tissue on the growing point of root.
Root-hair, long slender outgrowth from the surface of a rootlet, which acts as an absorbing organ, and helps to fix the plant in the soil.

Root-stock, a short thick rhizome.
Rostrate, beaked.
Rosulate, applied to leaves forming a rosette.
Rotate, wheel-like, applied to a regular, gamopetalous corolla with short tube and spreading limbs—*e.g.*, Forget-me-not.
Rugolose, finely wrinkled.
Rugose, covered with close wrinkled lines.
Runcinate, applied to pinnatifid leaves with large terminal pointed lobe and the apices of the smaller lobes directed towards the base—*e.g.*, Dandelion.
Runner. See *Flagellum*.

Saccate, pouched.
Sagittate, shaped like an arrow-head with two basal lobes directed backwards.
Salver-shaped = *Hypocrateriform*, applied to a regular, gamopetalous corolla with tube longer than the spreading limbs—*e.g.*, Periwinkle.
Samara, an achene or indehiscent fruit whose pericarp develops a membranous wing—*e.g.*, Elm.
Saprophyte, a plant which takes part or the whole of its food from decaying organic matter—*e.g.*, Bird's-Nest Orchid.
Sarcocarp, fleshy mesocarp of a drupe.
Scabrous, rough.
Scales, usually small brown or whitish membranous leaves or leaf-bases for protecting buds.
Scandent, climbing.
Scape, an inflorescence with a peduncle rising directly from the ground and not bearing foliage leaves—*e.g.*, Tulip.
Scarious, thin, dry, and stiff.
Schizocarp, a many-seeded dry fruit which splits into a number of one-seeded parts—*e.g.*, Mallow.
Scion, a young shoot; twig used for grafting.
Scorpioid, applied to a uniparous cyme whose daughter-axes develop right and left alternately.
Secund, turned to one side.
Seed, the ripened ovule, containing an embryo.
Self-pollinated, when the stigma has received pollen from the stamens of the same flower.
Sepal, parts of the calyx.
Septum = partition.
Septicidal, applied to the longitudinal dehiscence of capsules along the ventral sutures of the component carpels.
Septifragal, applied to the dehiscence of capsules when the valves break away from the septa or partitions of the ovary.
Serrate, toothed, with sharp processes pointing towards the apex.
Serrulate, with very fine teeth.
Sessile, without an appreciable stalk.
Seta, bristle, often tipped with a gland.

Silicula, a short pod with a replum—*e.g.*, Shepherd's Purse.
Siliqua, a long pod, opening by two valves from below upwards, and leaving the seeds on a median partition (replum) — *e.g.*, Wallflower.
Simple, applied to a leaf whose lamina is either undivided or whose incisions do not reach the middle of the leaf.
Sinuate, applied to a leaf with deep rounded lobes—*e.g.*, Oak.
Sorus, cluster of spore-capsules on under side of a fern-frond.
Spadix, a spike with fleshy axis bearing numerous sessile unisexual flowers enclosed by a spathe—*e.g.*, Lords and Ladies (Arum).
Spathe, a large bract protecting a young inflorescence.
Spatulate, applied to a leaf shaped like a spatula, broad and rounded at the apex, but tapering to the base.
Spermatophyte = *Phanerogam*.
Spermoderma = *Testa*.
Spikelet, applied to a group of closely-set florets of a grass.
Spine, a sharp woody thorn, either a modified branch—*e.g.*, Hawthorn, or modified leaf—*e.g.*, Saltwort.
Spongiole, root-tip.
Sporangia, spore-capsules—*e.g.*, Fern.
Spore, a specialised single reproductive cell—*e.g.*, Fern.
Sporophyte, spore-bearing plant.
Spur, a narrow tube-like process of corolla or calyx ; in the corolla it serves as nectar-container—*e.g.*, Violet.
Squamose, scaly.
Squarrose, spreading at right angles.
Stamen, part of a flower consisting of an anther (pollen box) and a filament (stalk).
Staminode, a metamorphosed stamen.
Standard = *Vexillum*, posterior petal of the pea flower.
Sterile, barren.
Stigma, the receptive part of the pistil upon which the pollen alights and germinates.
Stipe, footstalk of fern or of fungus.
Stipitate, having a stipe.
Stipules, paired leaf-like appendages at the base of a petiole ; outgrowths of the leaf-base.
Stolon, a trailing shoot or lateral branch, specialised for vegetative reproduction, which grows along the surface of the soil and roots at intervals—*e.g.*, Strawberry.
Striate, streaked with fine lines or furrows.
Strigose, covered with small hairs which lie all in one direction close on the surface.
Strobilus, an aggregate fruit consisting of an axis, bearing membranous scales, on the upper surface of which are achenes—*e.g.*, Hop.
Strophiole. See *Caruncle*.
Style, part of the gynaecium (or pistil) which connects the stigma with the ovary.
Suberose, corky.
Subulate, awl-shaped, tapering to a sharp point.

Sucker, a lateral branch arising from an underground stem—*e.g.*, Mint.
Sulcate, furrowed.
Superior, applied to an ovary when developed at the apex of the torus as in hypogynous and perigynous conditions.
Suture, (*a*) *ventral*, the line corresponding to the fused margins of a closed carpel or pod ; (*b*) *dorsal*, the line corresponding to the midrib.
Sympodial, applied to a rhizome or stem whose growth is continued by lateral buds.
Syncarpous, applied to an ovary in which the carpels have fused, thus producing an organ with one wall.
Syngenesious, applied to an androecium whose stamens are united by their anthers—*e.g.*, Dandelion.

Tap-root, a stout descending main root with or without lateral branches.
Tendril, a special irritable thread-like organ which is able to coil round any support it touches, and so enables the plant to climb towards better light. It may be either a modified branch —*e.g.*, Vine, or a modified leaf or leaflet—*e.g.*, Pea.
Tentacles, pointed, sensitive leaf-processes of Sundew which exude viscid fluid and roll inwards on capturing a fly.
Terete, almost round in cross-section.
Ternary, arranged in threes.
Ternate, applied to a palmately compound leaf having three leaflets.
Testa, outer coat of the seed.
Tetradynamous, applied to an androecium consisting of two pairs of long stamens and two short stamens—*e.g.*, Wallflower.
Thalamus = *Torus*. See *Receptacle*.
Thallophyte, a plant whose body is a thallus—a flattened membranous expansion bearing no members resembling stems or leaves ; a cellular cryptogam—*e.g.*, Seaweed.
Theca, an anther-lobe.
Thorn. See *Spine*.
Thyrsus, a mixed inflorescence, in which the main part is racemose and the lateral parts cymose—*e.g.*, Deadnettle and Horse-chestnut.
Tomentose, felted with dense hairs.
Torulose, with successive swellings.
Torus = *Thalamus*. See *Receptacle*.
Triangular, having three angles and three *flat* sides.
Trichotomous, dividing by threes.
Tricostate, with three ribs.
Trifid, cleft nearly half-way into three parts.
Trigonous, having three angles and three *concave* sides.
Trimorphic, applied to flowers having three forms in one species, with stamens and styles of different length—*e.g.*, Oxalis and Purple Loosestrife.
Trioecious. See *Polygamous*.
Triquetrous. See *Trigonous*.

Tropophytic, applied to plants which are xerophilous or hygrophilous according to season.
Truncate, ending abruptly, as if cut across.
Tuber, (*a*) *stem*, a swollen underground shoot, with buds and scale leaves, containing food material for vegetative propagation —*e.g.*, Potato; (*b*) *root*, swollen root used for food storage —*e.g.*, Orchid.
Tubercle, small wart-like outgrowth.
Tumid, swollen.
Tunicated, applied to a bulb composed of broad fleshy leaves—*e.g.*, Hyacinth.
Turbinate, shaped like a spinning-top.
Turgid, puffed up.

Umbel, an inflorescence (really a modified raceme) in which the pedicels all arise at the same level—*e.g.*, Ivy.
Umbilicate, marked with a small round depression.
Umbonate, bearing a small boss, like a shield.
Uncinate, with hooked points.
Uniparous. See *Monochasial*.
Urceolate, pitcher-shaped, with tube swollen in the middle and contracted at the top—*e.g.*, Bell-heather.

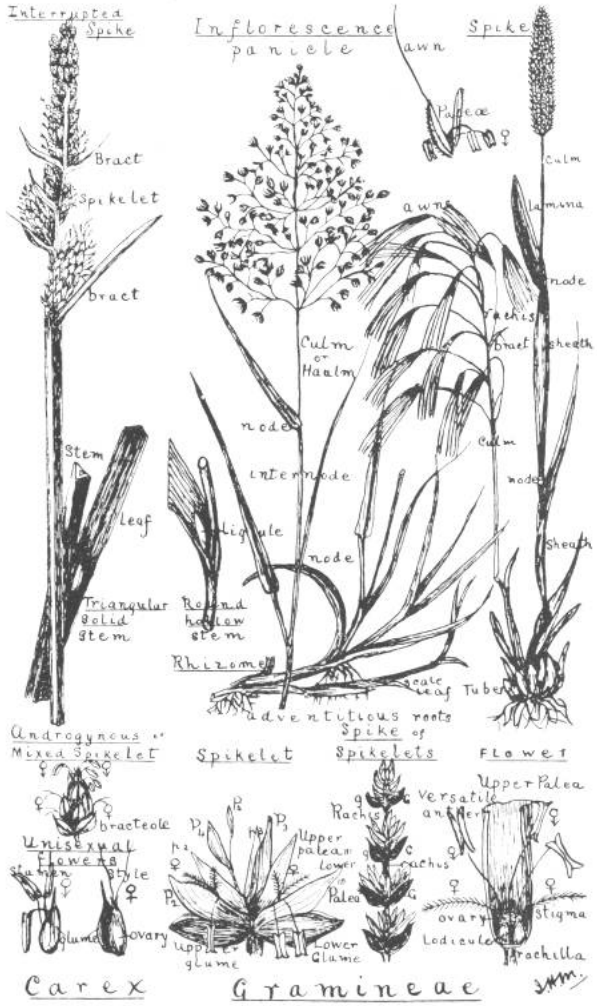
Valvate, in prefoliation, when the edges of the young leaves touch one another without overlapping.
Valve, opening of a capsule, or a stamen.
Vagina, a sheath; leaf-base.
Vascular, applied to the continuous system of plant tissue (consisting of strands or bundles), which serves for the transference of sap.
Vernation, applied to the arrangement of the young leaves in the bud with regard to each other.
Versatile, swinging freely round on its support—applied to anthers.
Verticillaster, an inflorescence whose apparent whorls are really scorpioid cymes with reduced axes—*e.g.*, Deadnettle.
Verticillate, arranged in whorls.
Vexillum = *Standard*, posterior petal of flower of the pea family.
Viscid, sticky.
Vittae, aromatic oil-tubes in fruit of the umbelliferae—"stripes."
Voluble, twining.

Wart, a hard or firm excrescence.
Whorled, arranged at the same level round the stem.

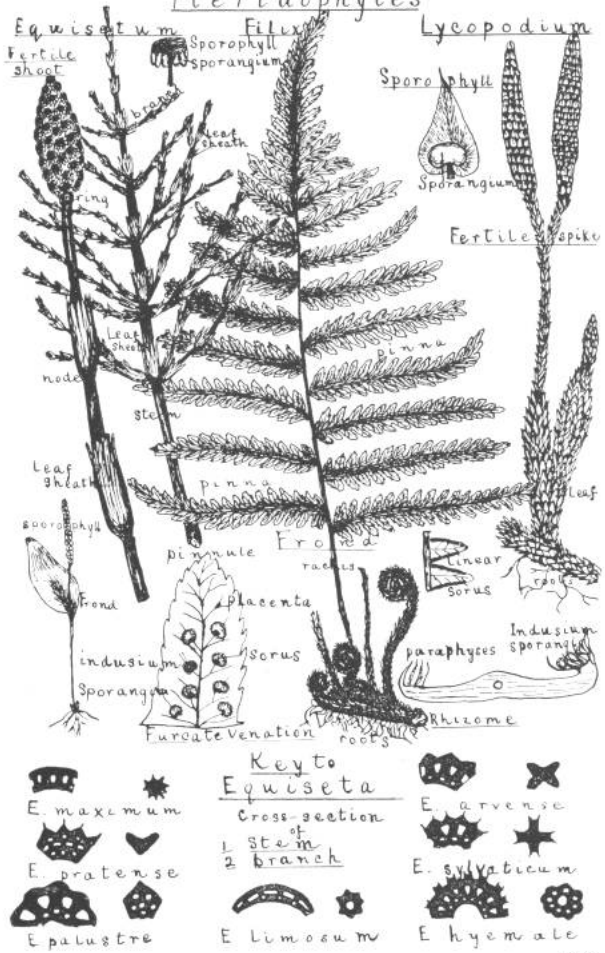
Xerophytes, drought-plants adapted to survive long dry periods, as they conserve the water-supply by means of spines, cladodes, succulent leaves, &c.

Zygomorphic = *Irregular*, applied to a flower divisible into two symmetrical halves in only one plane.

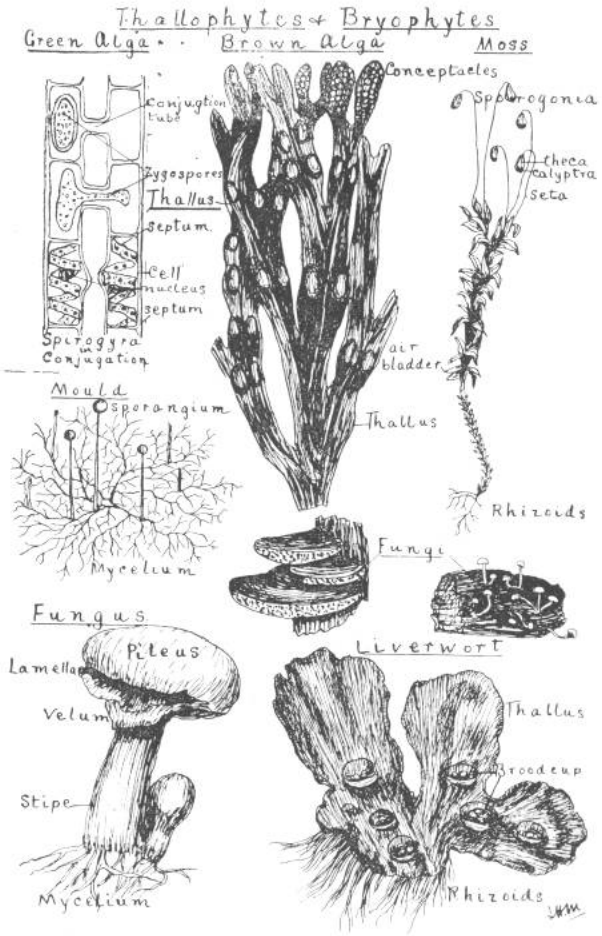
Zygomorphic flower
(Epigynous)
spur
Petaloid Perianth
outer petal
inner petal
Connective
pollinium
staminode
rostellum
stigma-lobe
Column
bract
inferior ovary
Parallel veined leaf
Bud
labellum
Inflorescence
Actinomorphic
inner petal
stigma
anther
Spathe
spadix
Sagittate Leaf
stigma
anther
style
stamen
ovary
Hairs
Stigma
reticulate veining
Lamina
bract
outer petal
Carpellary flowers
bract
Tubular Perianth
petal
Racemes
bract
ovary
petal
stamen
pistil
Petaloid perianth
Bud
Hypogynous
anther
Corona
petal
Foliage Leaf
stigma
old seed coat
Foliage Leaf
Foliage Leaf
Scale leaf
Cotyledon
Bases of Foliage Leaves
Tunicated Bulb
Shoot
Root
axillary bud
Flattened Stem
ovary
(Present year)
(Last year)
Corm
(stem)
Monocotyledon


Interrupted Spike
Inflorescence
panicle
Spike
awn
Palea
Bract
Spikelet
bract
Culm
lamina
awns
node
rachis
bract
sheath
Culm or Haalm
node
internode
Culm
node
Stem
leaf
ligule
node
Sheath
Triangular Solid stem
Round hollow stem
Rhizome
scale leaf
Tuber
adventitious roots
Androgynous or Mixed Spikelet
Spikelet
Spike of Spikelets
Flower
Upper Palea
Versatile anther
bracteole
Rachis
Unisexual Flowers
Upper palea
lower palea
rachus
stamen
style
Palea
ovary
Stigma
glume
ovary
Lodicule
Rachilla
upper glume
Lower Glume
Carex
Gramineae

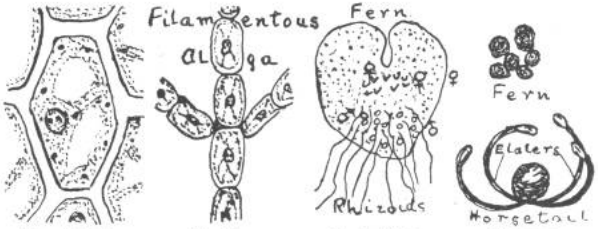
Pteridophytes



Cryptogams

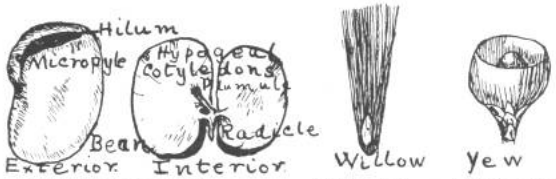

Thallophytes & Bryophytes
Green Alga
Brown Alga
Moss
Conjugation tube
Zygospores
Thallus
Septum
Cell
nucleus
septum
Spirogyra in Conjugation
Conceptacles
Sporogonia
theca
calyptra
seta
air bladder
Thallus
Rhizoids
Mould
Sporangium
Mycelium
Fungi
Fungus
Pileus
Lamellae
Velum
Stipe
Mycelium
Liverwort
Thallus
Broodcup
Rhizoids

Cryptogams



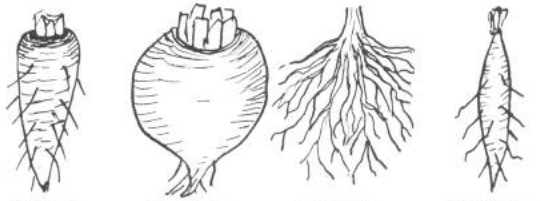
Plant Cell. Thallus. Prothallus. Spores.

SEEDS.

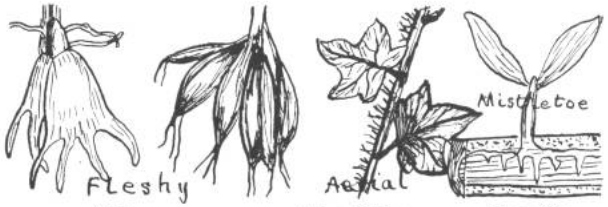


Exalbuminous Seed. Hairy Aril. Fleshy Aril.

ROOTS.



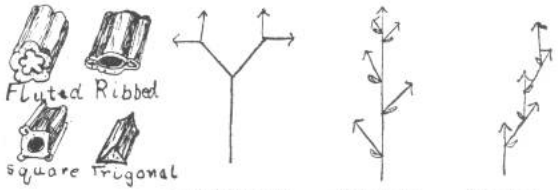
Conical. Napiform. Fibrous. Fusiform.



Tuberous. Adventitious. Parasitic.

STEMS.

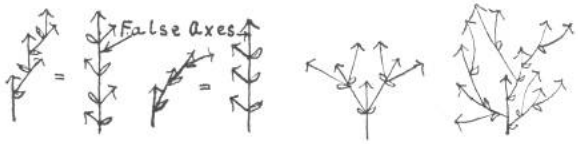
FORM. BRANCHING.



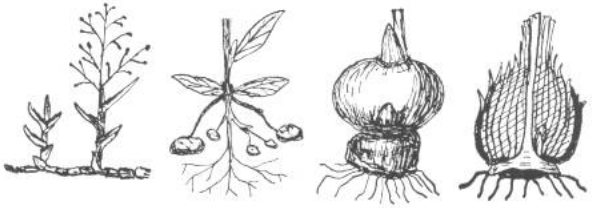
Dichotomous. Racemose. Cymose.

FORMS OF CYMOSE BRANCHING.

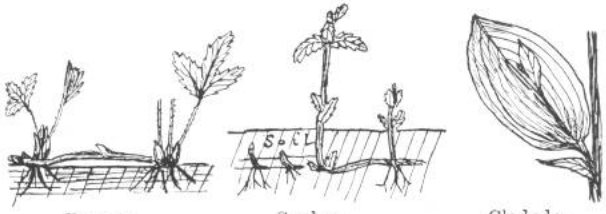
Scorpioid. Helicoid. Dichasium.



Uniparous. Biparous. Multiparous.



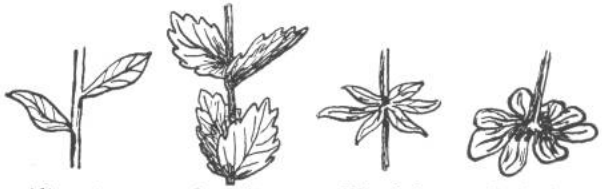
Rhizome. Tubers. Corm. Bulb.



Runner. Sucker. Cladode.

LEAVES.

PHYLLOTAXIS.



Alternate. Opposite. Whorled. Radical.

PREFOLIATION.

Reclinate. Plicate. Circinate. Convolute.

Conduplicate. Revolute. Involute. Open.

Valvate. Imbricate. Twisted. Equitant.

VENATION.

Unicostate. Multicostate.

Parallel. Reticulate. Parallel.

LEAVES.

FORM.

Deltoid.

Cuneate.

Cordate.

Obcordate.

Ovate.

Obovate.

Linear.

Lanceolate.

Spatulate.

Reniform.

Hastate.

Sagittate.

Oblong.

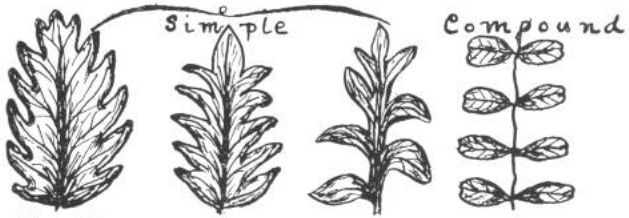
Peltate.

Petioled.

Sheathing.

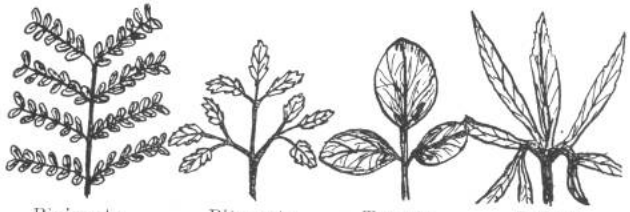
LEAVES.

INCISION.



Pinnatifid. Pinnatipartite. Pinnatisect. Pinnate.

Palmatifid. Palmatipartite. Palmatisect. Palmate.

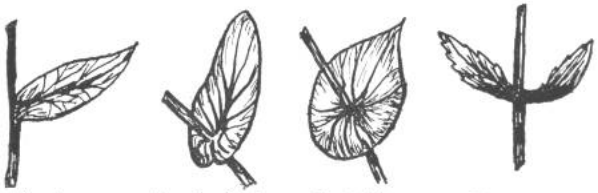


Bipinnate. Biternate. Ternate. Pedate.

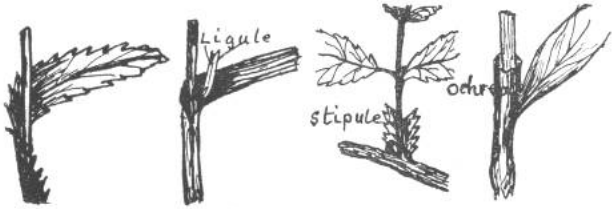
Paripinnate. Imparipinnate. Digitate. Decompound.

LEAVES.

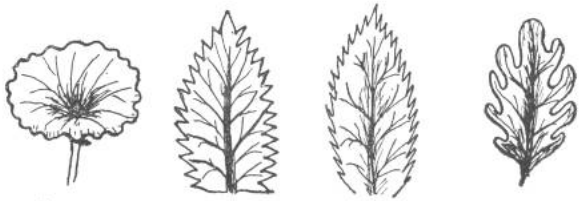
FORM.



Sessile. Amplexicaul. Perfoliate. Connate.



Decurrent. Ligulate. Stipulate. Ochreate.



Crenate. Dentate. Serrate. Lobed.

Lyrate. Runcinate. Spinous. Glandular.

LEAVES.

APICES

Obtuse.

Acute.

Acuminate.

Truncate.

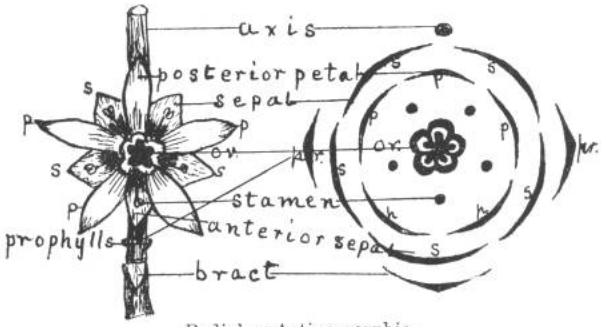
Mucronate.

Retuse.

Emarginate.

Tendrilled.

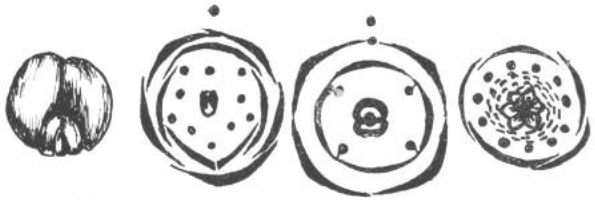
FLORAL SYMMETRY.



Radial or Actinomorphic.

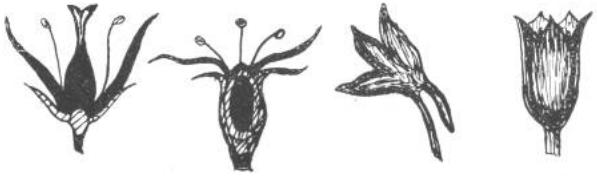
FLOWERS.

PHYLLOTAXIS AND FORMS OF CALYX.

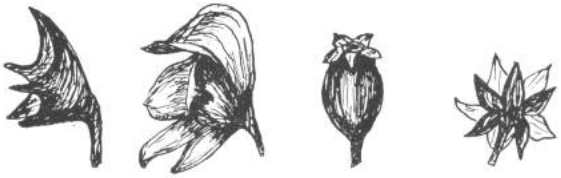


Zygomorphic. Isobilateral. Asymmetric.

Perigynous.



Hypogynous. Epigynous. Calcarate. Tubular.



Labiate. Galeate. Urceolate. Epicalyx.

FLOWERS.

COROLLA.

Tubular.

Funnelshaped.

Rotate.

Ligulate.

Campanulate.

Ringent.

Personate.

Gloveshaped.

Salvershaped.

Cruciate.

Papilionaceous.

Violaceous.

Orchidaceous.

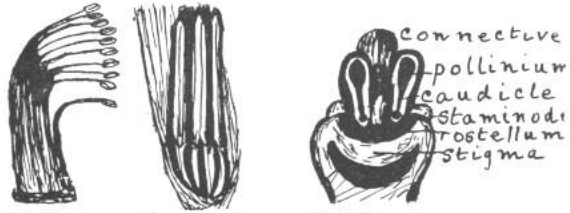
Petals.

Corona.

FLOWERS.

ANDROECIUM.

Innate. Adnate. Dorsifixed. Tetradynamous. Didynamous.

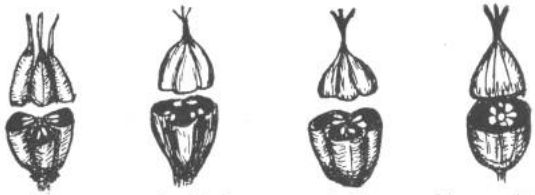


Diadelphous. Syngenesious. Orchidaceous.

GYNOECIUM.

Monocarpellary Pistil. Unilocular. Trilocular.

PLACENTATION.



Apocarpous. Parietal. Axile. Free-central.

INFLORESCENCE.

Raceme.

Spike.

Spike of Spikelets.

Spadix.

Panicle.

Corymb.

Simple Umbel.

Compound Umbel.

Capitulum.

Cyme.

Helicoid Cyme.

Catkin.

Verticillaster.

Cyathium.

FRUIT.

Follicle.

Legume.

Siliqua.

Pyxidium.

Achene.

Glans.

Cypsela.

Caryopsis.

Samara.

Cremocarp.

Carcerulus.

Regma.

Drupe.

Strobilus.

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